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PTEMBER 15, 1945 • VOL. 129, NO. 11

The Journal of the Telephone Industry

Published every week on Saturday by TELEPHONY PUBLISHING CORPORATION, 30 E. Huron St., Chicago, Ill. Subscription $5.00 per year. Entered as second class matter at the Post Office at Chicago, Ill., under the act of March 3, 1879.

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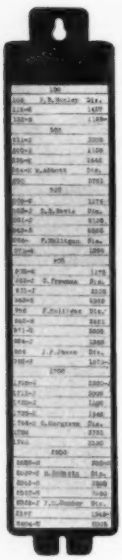

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511-SFF	5x11″	64	43	32	.94	.96	.99
515-SFF	5x15″	87	58	44	1.13	1.16	1.19
520-SFF	5x20″	116	78	58	1.51	1.55	1.59
524-SFF	5x24″	140	94	70	1.84	1.89	1.93
611-SFF	6x11″	64	43	32	1.04	1.07	1.09
615-SFF	6x15″	87	58	44	1.25	1.28	1.31
620-SFF	6x20″	116	78	58	1.66	1.70	1.74
624-SFF	6x24″	140	94	70	2.03	2.08	2.13
811-SFF	8x11″	64	43	32	1.23	1.26	1.29
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4570	4½″	2.40	2.45	2.55	4.30	4.40	4.55
5070	5″	2.50	2.55	2.65	4.50	4.60	4.75
5570	5½″	2.80	2.85	2.95	5.10	5.20	5.40
6070	6″	3.10	3.15	3.30	5.70	5.80	6.00
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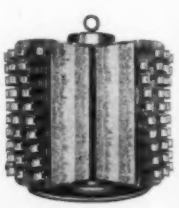

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TELEPHONY

The Journal of the Telephone Industry

SEPTEMBER 15, 1945

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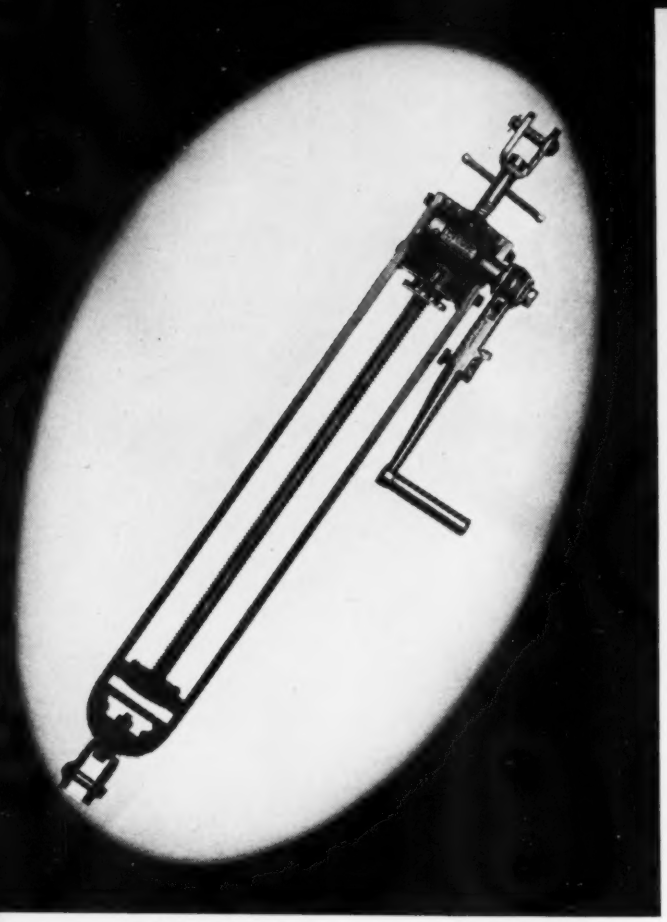
Published by
TELEPHONY PUBLISHING CORP.
Telephone Wabash 2435
608 S. Dearborn St., CHICAGO (5), Ill.
U. S. A.

Vol. 129, No. 11. Published every week on Saturday by TELEPHONY PUBLISHING CORPORATION, 608 South Dearborn St., Chicago (5), Ill. 15 cents per copy (except special issues). Subscription $3.00 per year U. S. and Countries in U. S. Spanish Postal Zone; $4 Canada; $5 Other Countries. Entered as second class matter September 4, 1908, at the Post Office at Chicago, Ill.



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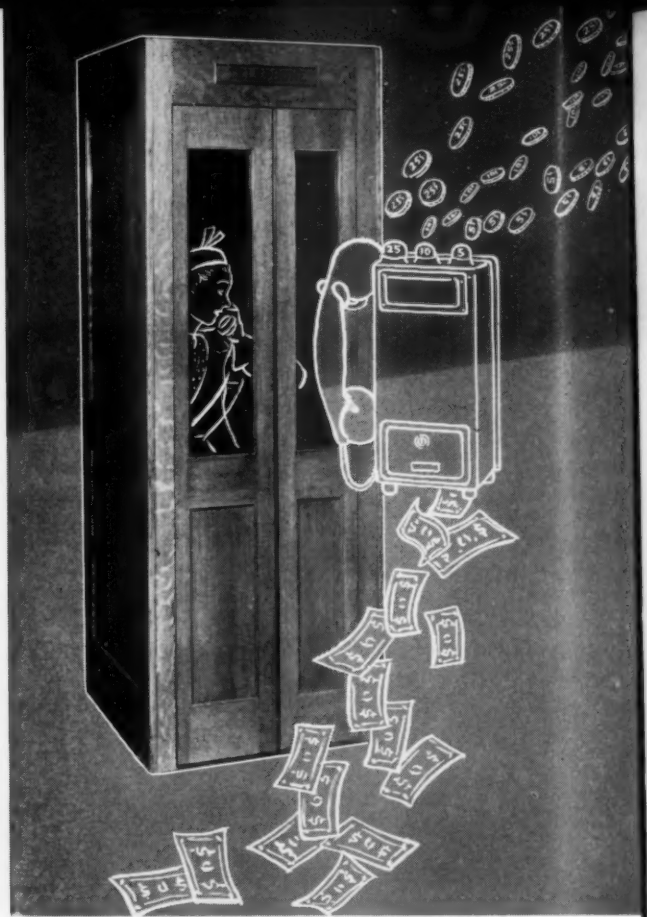

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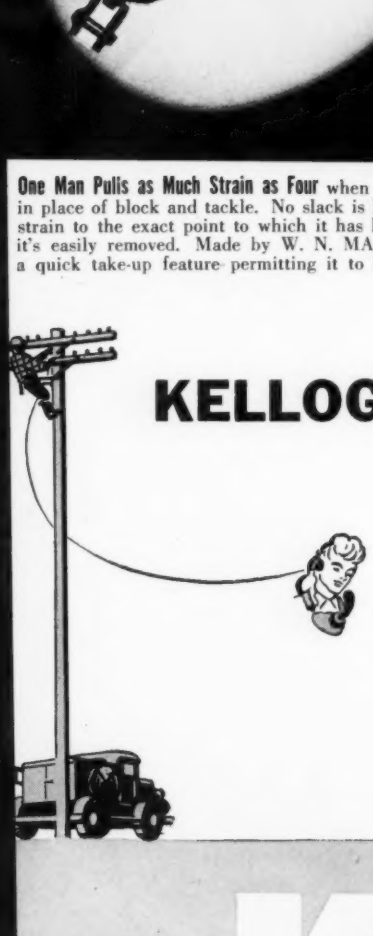

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RURAL TELEPHONE SERVICE OVER POWER WIRES

Possibility of carrier explored in joint field study. . . . Tentative designs of coupling, bridging and sectionalizing facilities. . . . Continuous load of each subscriber set likely to be 25 watts or less. . . . Economic practicability of the superposed carrier still is to be established. Reprinted from August 4, 1945 issue of *Electrical World*.

By R. KARL HONAMAN
Assistant Director of Publications
Bell Telephone Laboratories
New York, New York

MORE farmers are going to get telephones. The Bell System has announced plans for extending telephone service to another million rural homes within three to five years after men and materials again are available, and the Independent telephone industry also is understood to have somewhat similar plans for extending service in farming and country areas. Ever since the end of the depression, the number of telephone subscribers in rural areas has been growing steadily, and these new plans thus will serve to accelerate an upward trend that has been in evidence for some time.

Rural telephone service in the past has been provided largely by open-wire subscriber lines. Over a period of years much has been done to simplify these lines, to reduce their cost of construction, and to improve their maintenance. More recently, wire buried in the ground has come into use in areas where ground conditions permitted plowing it in. A considerable part of the proposed extension of rural service in the future undoubtedly will be given by these two types of facilities.

In addition, however, two new methods of reaching farmers by telephone are under consideration. One of these is by very high frequency radio. As a result of the remarkable accomplishments in radio over a period of years, this method has been proposed as an aid to farmers and others in isolated places. The Bell System has had a good deal of experience in adapting radio to telephone communication, and will undertake further studies of its use for rural service as soon as conditions permit. The Federal Communications Commission has been requested to make available 40 frequency assignments for 20 rural customer circuits with which to conduct experiments. These assignments could be used over and over in different localities, since their coverage is limited to line-of-sight range. The principal field for this type of service, however, would appear to be to farms beyond the reach of other methods.

Where farms are remote from existing telephone pole lines, but lie along electric power lines, rural power line carrier has been proposed. A development of this idea actively was under way when war requirements took precedence. The techniques of carrier telephony have been perfected over a period of years by the Bell System to make possible the transmission of many simultaneous telephone conversations over a single pair of conductors without mutual interference.

In adapting this technique to rural telephone service, it is proposed to su-

Fig. 1. Mobile test laboratory measuring impedance of drop wire outside unattended dial central office near Wayside, Md.

perimpose a high frequency carrier current on the electric power distribution line. Converting devices at both ends of the circuit will connect to telephones so that conversation takes place in no way different—to the speaker—from normal telephone usage. Although the power line carrier development is not yet complete, and in spite of certain technical difficulties, present indications are that it will be useful in extending telephone service to many of the 20 per cent of the farms in the United States that are not near existing telephone lines.

Putting telephone carrier on a power distribution circuit is an intriguing idea because it eliminates the necessity of additional wire facilities, and makes the power wire do double duty. At first glance, the scheme for using the same wire for two services appears to afford considerable saving. However, the cost of equipping the power line for this double duty is substantial, and the carrier telephone set for a subscriber is considerably more complicated than the simple telephone set that may be connected directly to a pair of telephone wires. Also, special equipment is required at the central office end of the line to connect the carrier system with the regular telephone central office circuits.

Several years before the war, Bell Telephone Laboratories began a study of the problems to be solved in setting up a rural power line carrier system. In 1940, in cooperation with the Rural Electrification Administration, the program was extended to include experimental work in the field. This project was very active until 1941. Then, due to lack of priorities for critical materials and the need for manpower in the war effort, the project joined the list of war casualties. In the course of this work, a practical demonstration of a carrier system was made on the lines of a rural cooperative in Maryland, covering a distance of about 10 miles and representing what might be considered typical conditions. As the work progressed, a number of technical phases of the problem had been investigated and several preliminary reports were prepared jointly by the engineers who carried out the work.

There are three broad transmission questions to be considered in developing a rural power line carrier system:

(1) What are the transmission properties of the power circuit at carrier frequencies? To answer this question requires a study of transmission losses and of the noise at carrier frequencies.

(2) What is the best way of connecting the low voltage high frequency carrier circuit to the high voltage low frequency power line? This involves frequency selection, protection and other design problems.

(3) How should the carrier circuits be designed and operated? The equipment considered under this question includes that at the subscriber's premises and that at the point at which connection is made to the central office, together with the apparatus necessary to connect into a general telephone system.

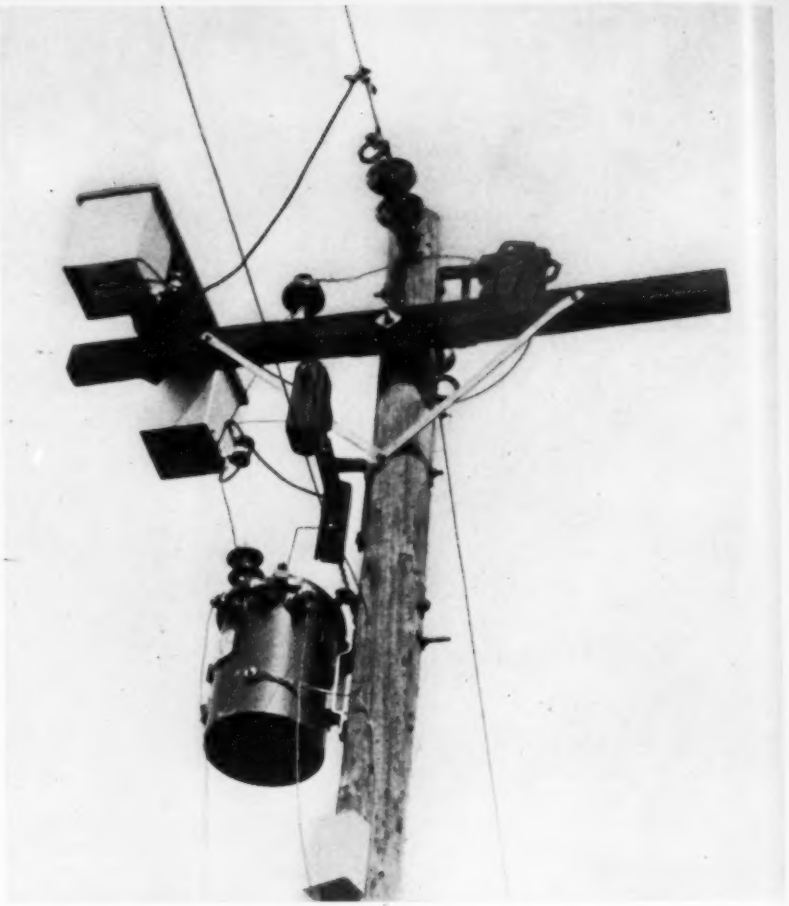


Fig. 2. Experimental sectionalizing network in temporary mounting on pole in Tompkinsville, Md. Characteristic impedance as terminator. Ultimate form of equipment and method of mounting subject to further development.

These questions were studied in the investigations referred to above, and some of the results of those studies as outlined in the preliminary reports are summarized below.

In applying carrier technique to a power distribution system, one is dealing with a medium designed to transmit 60-cycle power at a voltage of about 7,000 volts, whereas the carrier circuit transmits frequencies in the range from 100,000 to 500,000 cycles at a voltage of perhaps 10 volts. Obviously, if success is to be achieved, these two systems with widely divergent requirements must live together without mutual interference and without hazard either to the subscribers or to power and telephone maintenance crews.

The ideal medium for a wire carrier system is a straight pair of wires. A rural power system, on the other hand, is almost the opposite of this ideal. It has many branches, some of them relatively short, and it has other irregularities that cause reflections at carrier frequencies.

At the frequencies used for carrier transmission, each branch of a rural power system may have an important effect on the performance of the circuit. At a frequency of 180 kc., for example, a branch line about 1,300 feet long may, in effect, act as a short circuit across the main transmission path due to the reflection at the end of the tap. The transmission losses in the wires, themselves, and in the earth return are quite small compared to those produced by these reflections, and unless the reflections are eliminated, carrier transmission is impracticable.

These effects were investigated experimentally using a line in southern Maryland. A testing laboratory

Fig. 3. Connecting experimental coupler equipment to rural branch line at Tompkinsville, Md.

mounted in a truck *(Fig. 1)*, was used for the field work. Experimental means were provided to control the transmission irregularities on this test line, and it was found practicable to reduce them to the point where satisfactory transmission could be obtained. To accomplish this, the test section first was terminated in the character impedance of the line. This was done by connecting a condenser and resistance network *(Fig. 2)* from phase wire to neutral, and isolating the section beyond at carrier frequencies by an inductive reactance. The reactance coils, of course, were designed to withstand the maximum 60-cycle current, and the bridged section necessarily was insulated for full line voltage.

Short taps were isolated by inserting choke coils in the phase wire of the tap. This expedient was required for a number of taps from one to several thousand feet in length so that the reflections from the end of the tap would not react upon the main line at carrier frequencies. The coils inserted for this purpose must be capable of handling short circuit currents and must withstand the effects of lightning.

When, in addition, it was necessary to transmit carrier current into the taps, special couplers were provided which afforded an appropriate division between the current in the main line and that entering the tap *(Fig. 3)*.

The final form which these devices should take, and the extent to which they must be applied, need further study. For that reason, it is not practicable at present to indicate how much additional apparatus and cost is involved in setting up a high frequency channel on a power circuit of the present type, or what these factors would entail if they were to be incorporated in a new system designed for transmission of both power and carrier telephone channels.

In general, noise conditions on the rural distribution circuit, with the power circuit energized and its normal load connected, were found satisfactory for carrier transmission except when interference was encountered from radio transmitters. Interference from nearby radio stations, however, was quite severe.

During the course of the joint studies, an effort was made to use the power transformer rather than an additional coupling unit to take the carrier frequencies from the high voltage line to the subscriber premises. Both the "bridge loss" of the transformers and the attenuation the carrier frequencies suffer in passing through them were investigated. The former was not large enough to be an important factor, but no method was found of modifying the transformers that would make them pass the carrier frequencies satisfactorily.

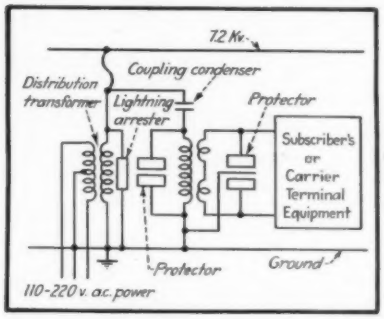


Fig. 4. Coupler network for sending and receiving rural telephone messages by carrier over 7.2-kv. rural line.

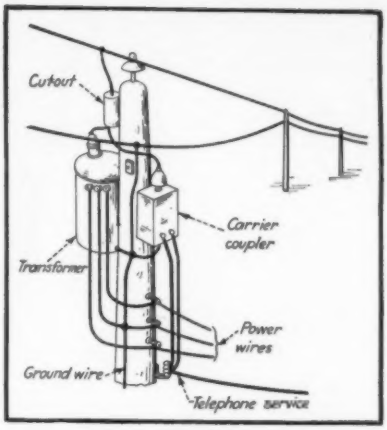


Fig. 5. Comparatively simple installation on power transformer-service pole for either wall or desk set telephone subscriber of rural telephone system.

Coupling circuits *(Fig. 4)* were devised for getting the carrier currents on and off the power circuits. These consist of a high voltage condenser in series with the primary circuit of a transformer with the proper carrier frequency characteristics. From the low voltage side of the carrier transformer, the carrier current is taken to the subscriber's premise by a separate pair of wires. At present, this appears to be the best means to accomplish this purpose. Studies show that this coupling unit had little effect on the quality of the speech transmitted. Obviously, in addition to the high frequency properties of such a coupling circuit, the protection of the low voltage circuit, and of the coupling circuit against lightning are important problems. In fact, all phases of protection have been

(Please turn to page 38)

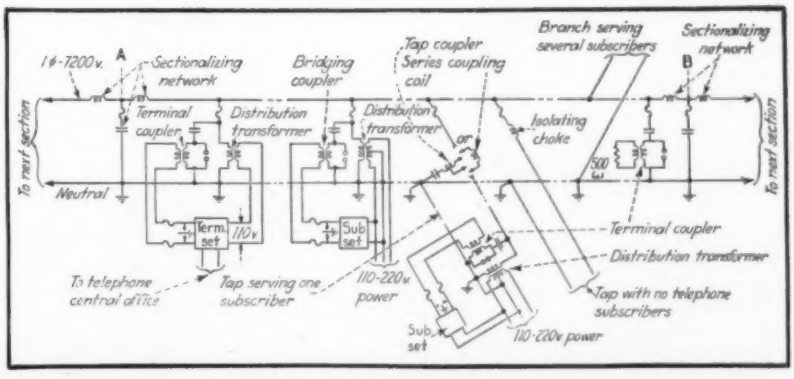
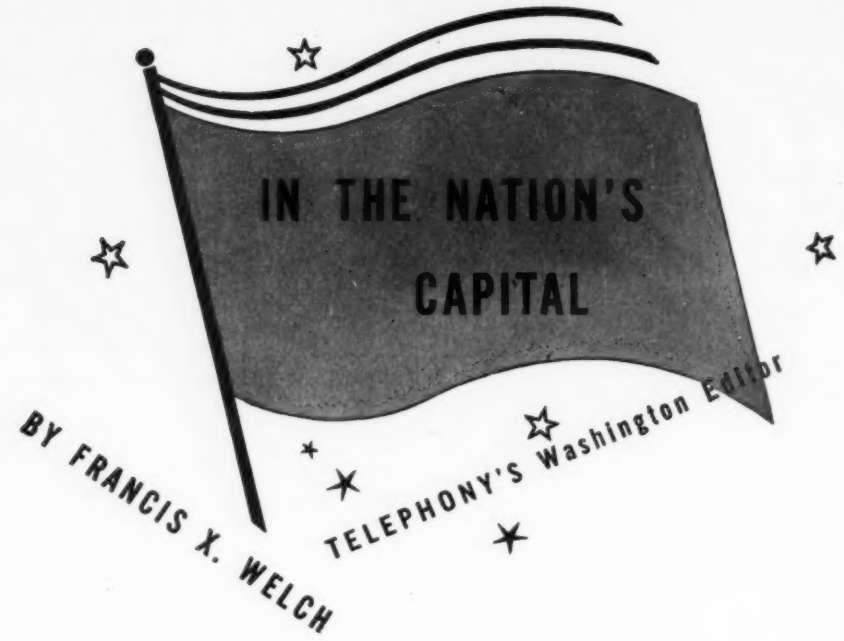


Fig. 6. General scheme of rural power line modified for experimental carrier transmission to telephone subscribers. The 500-ohm resistance would be omitted from the terminal coupler if the coupler served a subscriber station.



Mr. Welch views President Truman's first comprehensive message to Congress. . . . Gives list of tentative outlook on various major bills affecting the telephone industry.

NOW that President Truman has thrown a good two or three years' quota of wood sawing at Congress, we better can judge the direction and character of the Truman administration. We also have a pretty substantial basis for comparing the present administration with its controversial predecessor, the New Deal. President Truman's first comprehensive message to Congress since he assumed the highest office is not the easiest reading in the world. It consists of 18,000 words, covering 21 subsections and takes in more territory than a B-29 could fly over without refueling.

The significance of the President's message, however, lies not so much in what he said as in how he said it. If we sum up, item by item, the various recommendations of Truman, it amounts to a total restatement of virtually all the objectives of the New Deal. Indeed, the very act of Truman in throwing the whole business at Congress, all at once, was, in itself, evidence of our President's more simple and forthright approach. Taken all in one dose, it was enough to make a tried and true New Dealer of the old school gagged and popeyed. President Roosevelt probably would have submitted the program in more piecemeal fashion. A message now and a message then, timed to take advantage of some temporary trend or psychological atmosphere.

When Congress heard Truman's message, it knew that it had the whole business, then and there. It knew it could take it or leave it, or do what was wanted with it. When Mr. Roosevelt was in the White House, Congress never knew when another white rabbit was going to be pulled out of the hat.

The Truman approach is to recommend — to request. Occasionally he urges. But the attitude is one of good will; Congress is treated as a partner who should be told what is desirable, but left to his own discretion as to final judgment. President Truman did not exhort or scold as President Roosevelt might have done, and frequently did on many occasions. The net effect of this new approach is to put the responsibility for legislation on Congress. Old-fashioned experts on constitutional law say that is where it always belonged. Anyhow, it now appears that Congress again is in the saddle and we must look to Congress, rather than the White House, for the final word on many controversial issues.

Another thing to remember in sizing up the new Truman administration from the standpoint of legislative outlook is this: Actually, there are two Trumans. One is the political apostle of the New Deal, bound by a pretty complete and well-known heritage of administrative ideas and policies. Some of these affect utilities quite adversely. Truman No. 1, for obvious reasons, must profess, periodically, his devotion to these ready-made principles handed down from his predecessor. Truman No. 2 is a practical man in the White House, who wants to return there for a term of his own in 1948. To do this, he knows that he must compromise with certain trends in congressional and public sentiment which have set in since he took office. The significance of the distinction is this: Truman No. 1 will send the message to Congress. Truman No. 2 will take what he can get from Congress on the best practical terms.

Viewed in this light, there is no need to go over, item by item, the various recommendations of President Truman, for the simple reason that Congress is going to ignore or change a good many of them. Congress is going to write its own ticket and, evidently, that is all right with President Truman. He has done his duty by his political heritage in sending the message to Congress.

More important from the standpoint of practical outlook is what Congress is disposed to do about these recommendations and still other recommendations originating in Congress. Obviously, Congress could not pass any more than about one-fourth of the

S/SGT. HOBE BROWN of Philadelphia, Pa., and S/SGT. JOSEPH HUNT of Tuscoola, Ill., run a section of Spiral-4 telephone cable over an intersection in Trier, Germany. They are members of a signal heavy construction company. (Official U. S. Army Signal Corps Photo)

mighty program thrown at it by President Truman's message, even with a minimum of debate and a maximum of agreement. And, unless all signs fail, neither of these ideal conditions for expediting legislation is going to prevail for the rest of this session.

Very well. What laws *will* be passed and what is the outlook for the rest? Your correspondent once more assumes the role of prophet (or Ouija board chauffeur) to give you the following check list of tentative outlook on various major bills, directly or indirectly affecting the telephone industry.

(1) *Reorganization of administrative agencies.* The President's message establishes a good case for the cutting, pruning and merging of the overlapping and duplicating undergrowth and tanglewood of bureaucracy which has grown up, jungle-wild, during a decade of the sprawling New Deal administration. Congress probably will not give the President a blank check to shift government bureaus around as he pleases. Your correspondent believes that some sort of a reorganization bill will pass—not, perhaps, before the end of this session—but probably early next year. It will exempt from reorganization a number of so-called pet agencies, including all the federal regulatory commissions. That, incidentally, includes the Federal Communications Commission. Congress also will be likely to tie a string on such authority as it does give the President to reorganize administrative agencies. The string probably will be in the form of a reservation entitling Congress, either jointly or by separate vote of either house, to veto within a specified period (60 days, perhaps) any change the President may authorize pursuant to the reorganization powers granted him in the law. This much can be said about reorganization: As much as we need reorganization, there is danger that Congress will emasculate it by making too many exemptions.

(2) *The Murray Full Employment Bill.* Congress will pass some kind of a bill along this line, but also with modifications. Principal opposition to the bill seems to be from state governments which point out that blanket, uniform, federal unemployment compensation would have a tendency to nullify state unemployment laws and state machinery which has been set up pursuant thereto. Congress is likely to give the states a greater voice and cut down on the emphasis in favor of federal planning. The provision of $25 a week for 26 weeks also is likely to be modified, so as to give more consideration to local costs of living differentials and other local conditions.

(3) *Ending the wartime agencies.* The War Production Board already has gone out of existence, as far as the utilities are concerned, with the forthcoming dissolution of the Office of War Utilities on September 30. The WPB will hang around until the end of the year, but merely a shadow of its former self. President Truman has asked for, and probably will get, authority to continue the Office of Price Administration for purposes of holding down the prices for as long as another year. But the rationing duties of OPA are disappearing rapidly and should be off entirely before Christmas. (Incidentally, the Office of Defense Transportation, which probably will give up the ghost by the end of the year, is reported likely to call off the bans on conventions soon. [Editor's note: See page 18.] Congress doubtless will obey President Truman's plea not to start the clock ticking on statutory limitations by declaring the end of the war officially. But it will use its bargaining power to see that the administration does not keep some prima donna war agencies hanging around long after the war is over and they are no longer necessary.

(4) *Surplus property disposal.* Congress will approve a bill favored by the administration to set up a surplus property disposal board under a single administrator, rather than a three-man board as at present. There will be quite a bit of left-wing pressure to have the government retain certain surplus plants, especially aluminum plants in the West, in order to make jobs. But the present congressional sentiment seems to be in favor of a hard-boiled attitude — getting the government clear of surplus goods as quickly as possible.

(5) *Wage and labor legislation.* With the War Labor Board preparing to wind up its business about the end of the year, much of the punch has been taken out of the Pepper resolution (now before the Senate) instructing the War Labor Board to install a 65-cent minimum hourly wage as a standard in deciding cases before that board. But President Truman's message will put new steam behind the various bills in Congress to increase the minimum hourly wage of 40 cents (now provided by the Fair Labor Standards Act). The administration probably will throw its strength behind a 65-cents-an-hour minimum while some of the more extreme labor representatives will root for a 75-cents-an-hour minimum. There is much strength in Congress behind such legislation. There is some chance that one of the 65-cents-an-hour bills will get through, although the present betting is in favor of a compromise at a lesser rate, maybe 55 or 60 cents an hour. Furthermore, the Independent telephone industry will have to keep on its toes during the progress of such legislation, to insure that the present exemptions in favor of exchanges of less than 500 stations are not wiped out somewhere along the line.

(6) *Rural aid legislation.* President Truman's message did not say anything in particular about the Rural Electrification Administration, nor about the movement to extend federal

financing to rural telephony. But we can depend upon it that something more will be said about these two items in Congress. As for REA, this writer looks to see Congress pass the pending Lucas-Poage Bill to give REA $580,000,000 lending authority for three years, starting next July. The Hill-Patrick bills to amend the Rural Electrification Act so as to authorize similar loans for rural telephone service still are sleeping peacefully in respective committees of the Senate and House. So far, the administration has shown no particular interest in the telephone bills as such. Senator Hill is in a position to force hearings before the end of the year, if he wants to make an issue of it. Chances are that he won't. He may start something during the next session, which begins in 1946. As far as the House is concerned, the telephone loan bills are likely to sleep soundly not only through this session, but probably the next one as well. If the Senate actually got to pass such a bill, of course, it would wake them up in the House.

(7) *Pearl Harbor inquiry.* Although there is no utility angle to this issue, it is a matter which will bear watching because of its explosive potentialities. It could, conceivably, blast away the present cordial and cooperative relationship between the White House and Congress. If so, the result on other legislation would be far-reaching. Sentiment in Congress is increasing rapidly for a wide open investigation of the Pearl Harbor blunder, with nobody spared, living or dead. The administration is torn between loyalty and practical necessity. The outcome of elections in 1946 and 1948 well could turn on how astutely the Pearl Harbor issue is handled.

(8) *Taxation.* The present situation is entirely too confused to venture any tentative prediction on how much personal and corporate income tax may be reduced, beyond the general assertion that some reduction finally will be approved. In the process of drafting a new tax bill, however, one provision of interest to utilities is likely to emerge. It well may be in the nature of more publicity for earnings, expenditures and extent of tax exemption now enjoyed by labor unions, co-operatives, and other groups and associations which have tax exemption. Congress is not yet in a mood to impose actual taxation on these groups. But the new bill may witness another step towards eventual tax equality by making existing tax inequality more apparent. The framework for eventual regulation, in this quarter, also may be laid by the same means.

CONVENTION BAN LIFTED

The Office of Defense Transportation, in accordance with the recommendation of February 1 by the Office of War Mobilization & Reconversion that the ODT ban on conventions be lifted, on September 11 announced that all restrictions on conventions and trade shows will be lifted October 1.

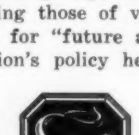
Francis X. Welch, TELEPHONY's Washington editor, reported that, despite the ban lifting, the United States Independent Telephone Association advised that at the present time there is no indication of a change in the association's convention plans. (TELEPHONY, August 25, page 27.)

(9) *Continued draft and universal training.* No hope is held out for the congressional authorization of any permanent policy of universal military training. But Congress probably will be persuaded to allow drafting under the existing Selective Service Law to continue through the year, perhaps on a reduced basis. Grass roots opposition to the draft is increasing steadily.

(10) *Public works bills generally.* Congress already has authorized a number of projects for which appropriations still must be made before work is started. In addition, the administration's present tendency is to pile up a backlog of public works projects, including those of very doubtful desirability, for "future action." The administration's policy here seems to be to impress or tempt Congress with the sheer volume of such "blueprint" projects, while labor leaders and leftists point with alarm to unemployment dangers, etc. Actually, the unexpected pace set by private industrial reconversion seems to be impressing Congress in another direction just at present, but the picture could change by next spring.

(11) *Scientific and atomic controls.* Congress is likely to take some kind of favorable action on President Truman's recommendation that there be established a single federal research agency. Now that the Office of Scientific Research & Development, under the able directorship of Vannevar Bush — which primarily was responsible for the development of the atomic bomb—is being dropped, along with other war emergency agencies, the President feels that some sort of board should be created to foster and coordinate national research on a peacetime and permanent basis. President Truman took care to add: "I stress the fact that the federal research agency here proposed should in no way impair that freedom (the freedom of science)."

Probably independent of an over-all board of scientific research, there is likely to emerge some kind of a board controlling the use of atomic energy. Within the first three days after Congress had convened, a half-dozen measures had been dumped into the hopper on this subject, and probably more will follow. The bill of Sen. Brien McMahon (D., Conn.) has as good a chance as any. He would set up a six-man board to be composed of two members appointed by the President, one each from the War, Navy and Justice departments, and the chairman of the Federal Power Commission. This board would protect the secrecy of the bomb, control further developments and prohibit "private exploitation" of atomic energy. Congress may prefer some other bill on the subject, but there is strong sentiment in Congress for prompt establishment of controls for the mighty atom, if, indeed, it ever can be controlled by mere man-made law.



»» "Blitzkrieg!" responded a man's voice when Webbly Edward, CBS reporter in the Philippines, put in a telephone call to Clark Field. He was startled again when, on calling Manila, he was told, "I'll give you Racehorse."

After a moment when another voice answered, "This is Racehorse," the reporter repeated that he wanted to telephone to Manila. This time he heard, "All right, I'll give you Jumbo."

These strange names, he quickly realized, were temporary ones for telephone exchanges. He says that on Guam the exchanges are named for American cities.

THE PLANT MAN'S NOTEBOOK

BY RAY BLAIN • TECHNICAL EDITOR

IT WOULD seem advisable for some of the larger telephone companies to make an effort to insure that their employes are made cognizant of important facts concerning the telephone industry, in general. This would not be a difficult task to perform if only a simple educational program were initiated. In fact, availability of trade publications to the pick and shovel workers would help greatly. Although such trade publications usually are read by the officials and engineers of the larger companies, rarely, if ever, do the installers, linemen and trouble shooters see the copies.

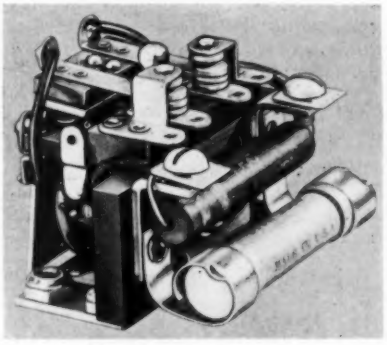
The writer learned of a case which demonstrates how little the workers of a large telephone company know of the industry. This particular employe went into an apartment to install a telephone. A combination handset had been borrowed as a model in order to select a location for the new instrument. It so happened that it was of the same make as that used by the telephone company which operated in that area. The installer, seeing the telephone, stated it was the property of his company and that he must take it back with him. When he was advised that it was private property, he argued at length, for he was of the firm opinion that it was impossible for anyone except his company to own one of the instruments. The matter finally was straightened out, not without discredit to the local telephone company.

If this installer had been instructed in some of the general elementary facts of the industry, he would have known that there are several different types of telephones on the market.

It is believed that a general knowledge of these and other facts on the part of employes would result not only in their taking a greater interest in their work, but would tend to make them more valuable.

* * *

A flasher of new design appears to have a telephone application. This design utilizes a miniature, but heavy duty relay, an electro-thermal timing device and a non-inductive resistor unit. These components all are incorporated in a single lightweight assembly as indicated in the accompanying photograph.



This unit can be used to control interruptions through a range of 60 to 80 per minute by varying the current through the thermal unit. Operating voltages include all standard AC and DC ranges and frequencies.

* * *

A new type of plug connector, with multiple-fingered spring inserts providing uniform pressure on long wiping contacts, recently has been developed. Connections of from one to 80 circuits can be provided with this arrangement. Wire sizes from No. 26 through No. 12 can be accommodated. It would seem that these new plug connectors could be used to advantage on testing instruments and could be used for other special jobs in the telephone industry.

* * *

The following kink was received from Maj. R. T. Brown, signal officer, Aberdeen (Md.) Proving Ground:

"During the present prolonged period of damp weather, we were starting to have trouble from moisture in our 11-position manual switchboard. The cords, for one thing, were so badly swollen that the operators could hardly get them up and down. To make a long story short, we packed the entire board with bags of desiccant, putting two under each cord shelf and two between the multiple cables inside the board at each position. Within 24 hours, the entire switchboard was as dry as a bone. It will be standard practice for us from now on to keep these bags of desiccant in the switchboard at all times. I highly recommend that every office do the same, if not located in an air conditioned building."

An arrangement of suitable metallic containers in order to provide this form of switchboard drying would seem desirable. Also, a special heater might be provided so the desiccant could be reactivated as required.

* * *

The telephone industry has been without adequate supplies for so long that some companies may have plans for rebuilding entire plants when materials again become available.

While it is true that entire plants or parts thereof should be replaced when they have outlived their economic lives, care should be observed not to replace parts which can be repaired economically. This question will require engineering studies of each individual case in order to arrive at the correct conclusion.

by MAYME WORKMAN
traffic supervisor
the Illinois Telephone Association
and traffic editor

THE OPERATOR'S CORNER

SOME folks are imbued with the idea that they are "small fry." They consider themselves so small and insignificant that they fail to do what they really are capable of doing. Haven't you heard an operator say, "What can I do? I'm just *one* operator?"

An interesting experience is related, illustrating that we all can be important if we have the right slant on life.

A little lad about four years of age was playing in the sand and running races with the waves. Suddenly he stopped, apparently fascinated by an idea. Picking up his sand bucket he sped away to a water faucet some distance from the beach and, after filling the bucket with water, he carried it back carefully to the water's edge. As the next wave came in, he threw his bucketful of water into the sea with all his childish strength and leaped away, shouting to his mother, "I'm filling up the ocean!"

Verily, those childish words were true for once the bucketful of water had fallen, *it was part of the ocean*—a very small part, perhaps, but a part, nevertheless, and of just such parts the ocean is made.

How frequently we hear an operator remark, "I just work in a small tributary office. We only have a two-position switchboard." The traffic from this and other small offices, like the little streams that flow into the ocean, help to make the large toll centers big.

The great coral islands of the Pacific are composed of the shells of tiny creatures, almost infinitesimally small. Not one of them is more than a mite; yet together they can build an island, and when it is done, any one of them could say, "I helped make that island."

A little old lady with sparkling eyes remarked, "I am one of the most insignificant persons in this town. I guess you would call me a 'nobody.' I know I don't count for much. In fact, I don't think I would count at all if I didn't stand alongside someone who *does* count for something." With a quizzical look in her eyes, she added, "You see, if you are nothing and you stand up alongside of one who does count for something, and really stand with her, that makes zero added to one. In other words, there are then 10 of you. That's the way nothing counts."

The little old lady's philosophy is all right. Applying it to our business, we might say one little tributary exchange standing all alone, or one single operator in a small office may seem insignificant, but stand them up alongside of one another and we have an immense array of buildings, equipment and people, all a part of the vast network of national and world-wide communication. The most important call can originate or terminate in a small tributary exchange, and it takes only a single operator to ring the desired number.

"Anywhere you say, Miss, only which IS the starboard side of the desk?"

No one ever is as small as when he is separated from an ocean that needs him, and none is as great as the one who loses himself in the immensities of one of life's surging oceans.

Questions from Illinois Operators

(1) Suppose a party places a call in one town and gets a report on the call, but doesn't want to cancel it. He then goes to another town and talks on the call. Does the party have to pay a report charge at the first place he calls from?

(2) When you encounter a "no trunk" condition to a remote control office, what report do you pass to the OTC?

(3) On a collect call within the state, should Illinois be entered on the ticket?

(4) What does the entry, "The following offices may take different rates," signify in the *Toll Rate and Route Guide?*

(5) How are toll centers indicated in the *Toll Rate and Route Guide?*

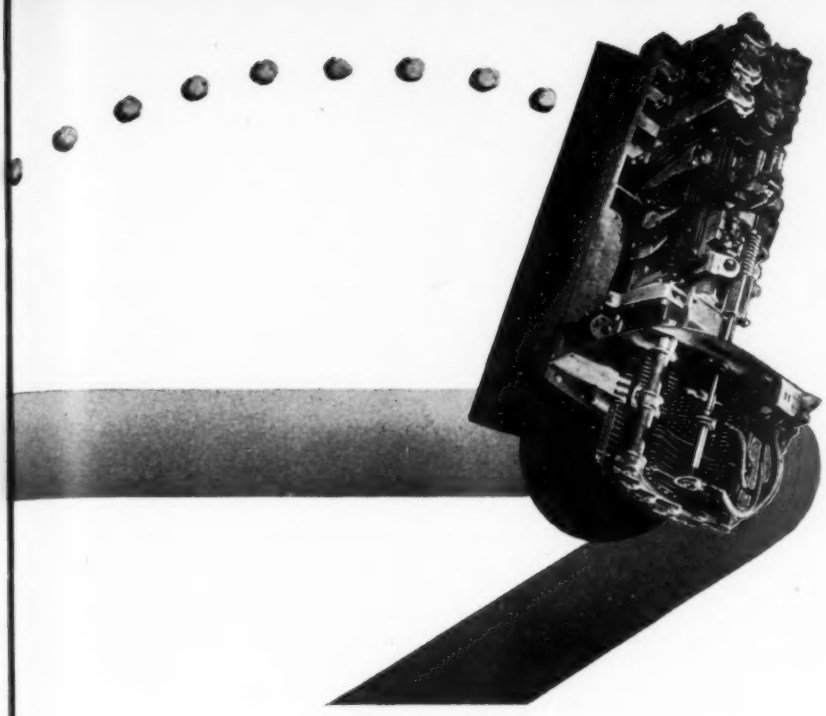
Answers to these traffic questions are presented on page 42.

V V

Study Telephone Facilities At West Jefferson, N. C.

The Central Telephone Co., Sioux Falls, S. D., and the Bell System are making surveys at West Jefferson, N. C., relative to expansion and improvement of telephone facilities, it is reported.

Complaints over delays in completing long distance calls last summer led to the survey which has revealed that much of the delay is caused by lack of adequate long distance circuits from North Wilkesboro to outside points.



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Rural Installation Charges Reduced in Connecticut

A new tariff has been filed by the Southern New England Telephone Co., New Haven, with the Public Utilities Commission of Connecticut which will enable at least 95 per cent of the state's farmers, now without service, to obtain telephone service at regular monthly rates, without additional charge for the construction of wire lines.

Wire line construction costs to the remaining 5 per cent are expected to be reduced greatly, since the tariff provisions not only extend the free highway construction allowance, but lower the construction charge beyond the free allowance.

In the past, the rural subscriber has had to pay for construction charges if he lived three-tenths of a mile beyond existing telephone lines. Under the new tariff, he will get the free allowance if he lives a half mile further than the end of the existing line. Moreover, it may be possible for him to take advantage of the "grouping plan" whereby the new half-mile free allowance per subscriber may be averaged in such a way as to get the lowest cost for each one.

In the past, the charge for construction beyond the free allowance was from $16 to $30 for each one-twentieth of a mile. Under the new tariff, the charge is $13 for the same distance.

Plans for extending rural lines in Connecticut are expected to be put into effect just as rapidly as manpower and materials become available.

V V

Asks Commission to O.K. Sale Of Pennsylvania Independent

Approval of the purchase of the Indian Ridge Rural Telephone Co., Lehighton, Pa., operating in Carbon County, by the Bell Telephone Co. of Pennsylvania was asked in a petition to the Pennsylvania Public Utility Commission August 27. The proposed price was $6,200.

J. Neeb is manager of the Indian Ridge company which serves 154 subscribers in Parryville, Towamensing and Franklin townships. The subscribers are served through the Bell's Lehighton exchange under an arrangement made many years ago when the Indian Ridge Company was organized.

Like the Bell's Lehighton exchange, which is part of the Allentown, Pa., division, the addition of the Indian Ridge company will place this service under the direction of the Allentown office, headed by William Davidson. The latter said that existing facilities will be rehabilitated and that though the switch over will mean no change to the subscribers, the service is expected to be improved under the Bell's expansion program.

V V

Stockholders Approve Sale Of Pennsylvania Independent

The 50 stockholders of the Berks & Lehigh Telephone Co., Kempton, Pa., recently approved its sale to Lewis C. Hyle, owner of the Lycoming Telephone Co., in the Williamsport area, for $4,000. (TELEPHONY, September 1, page 38.)

Ira Schroeder, whose resignation as operator of the exchange's magneto switchboard in his home was to have become effective September 1, was prevailed upon to continue until September 30, so that the purchaser might have time to find a new operator and a new switchboard location.

Upon approval of the sale by the Pennsylvania Public Utility Commission, the 35-year-old company will be dissolved at the end of the year and its assets distributed among its stockholders.

Mr. Hyle and his brother, Ralph, have been in the telephone industry for 27 years, having been co-managers, for a number of years, of the Emmaus (Pa.) Telephone Co. Early this year, they purchased the Lycoming company which was formed by the merger of three companies.

V V

Postpone Arkansas Independent Service Complaint Hearing

Hearing on a show cause order to the Southwest States Telephone Co., scheduled for September 4, was postponed indefinitely by the Arkansas Public Service Commission August 31. The delay was granted at the request of the company which now is repairing facilities at Alma, Altus, Alix, Denning and DeValls Bluff. (TELEPHONY, July 28, page 31.)

The commission's order asked the company to show why service in these towns should not be improved.

V V

Negotiates Sale of Auxvasse, Mo., Independent

Negotiations for the sale of the Auxvasse (Mo.) Telephone Co. have been concluded, subject to the approval of the Missouri Public Service Commission, E. O. Turner, company owner and manager, recently announced.

Mr. Turner stated that plans call for formal transfer of ownership and management on October 1. He purchased the company last year from F. M. Holland.

V V

Seek to Transfer Ownership

Because of Mrs. Talbert's poor health, Mr. and Mrs. Bert Talbert, owners of the Exeter (Mo.) Telephone Co., recently applied to the Missouri Public Service Commission for authority to transfer ownership to Tom Preddy and his son, Gerald, who now are in charge of the exchange.

Indiana Commission Grants Rate Petition of Two Independents

Following a hearing on July 27, the Indiana Public Service Commission granted authority to the Holland (Ind.) Telephone Co. to institute the proposed increased rate schedule as filed last May. (TELEPHONY, June 9, page 20.)

On July 24 the commission granted the petition of the Dunlap (Ind.) Mutual Telephone Union, requesting permission to add 25 cents to its party line rate, 50 cents to the private line rate and 75 cents to the tariff for business service, also adding a charge for private line telephones located beyond the exchange limits.

V V

Girl Admits Faking Calls Causing Marital Rifts

Efforts of a 13-year-old Negro girl to cause trouble between several Decatur, Ill., married men and their wives will terminate in delinquency charges being filed against her in Macon County Court, it was said August 30 by Assistant State's Attorney Roy B. Foster.

Police caught the girl after some of the husbands and wives complained about receiving anonymous telephone calls, in which the wives were led to believe that their husbands were having dates with the girl caller.

A trap was set and the girl was traced through a telephone call from her home. She admitted making the calls, but said they were made "for fun."

V V

Asks Radio-Telephone Permit For State Police Use

The Bell Telephone Co., of Pennsylvania, Philadelphia, has applied to the Upper Merion Township Commissioners for permission to erect a small radio-telephone station there.

This station will be used by the Pennsylvania State Police as part of a radio-telephone system which will link approximately 400 police cars with the various state police barracks and troop headquarters. When it goes into operation, it will be possible for state policemen to carry on two-way telephone conversations with their headquarters.

V V

Southwestern Bell Seeks New Financing of $75,000,000

The Southwestern Bell Telephone Co. September 4 filed application with the Illinois Commerce Commission for authority to issue $75,000,000 in new financing to replace outstanding obligations and effect an annual saving of $412,000 in reduced interest.

The application, filed by Bruce A. Campbell, East St. Louis attorney, asked that the company be allowed to issue $75,000,000 of 40-year, 2¾ per cent debentures. They would replace outstanding first and refunding mortgage 3½ per cent bonds.

The company operates in Missouri, Arkansas, Kansas, Oklahoma, Texas and in part of Illinois, in the vicinity of East St. Louis.

V V

Minnesota Independent Seeks Increased Rates

The application of the Audubon (Minn.) Telephone Co. for increased rates will be heard October 16 by the Minnesota Railroad & Warehouse Commission. The monthly rate schedule is as follows:

Class of Service	*Present Net Rates*	*Proposed Net Rates*
Individual line, business	1.75	$2.00
Two-party line, business	1.50	1.75
Four-party line, business	1.25	1.50
Individual line, residence	1.25	1.50
Two-party line, residence	1.25	1.50
Four-party line, residence	1.00	1.25
Rural multi-party, company owned	1.00	1.25

V V

Investigates Alleged Territory Invasion in Minnesota

The Minnesota Railroad & Warehouse Commission, investigating a complaint filed by Mrs. Clarence Goertz, Elgin, alleging invasion of the territory of the Bremen Party Line Telephone Co., Millville, by the Hammond (Minn.) Telephone Co., set October 9 for the public hearing at which all interested parties might be heard.

Mrs. Goertz claimed that the territory invasion, which occurred in 1935, had resulted in the Bremen company being unable to serve her farm home.

The commission added that service of the order be made upon Ralph Rohrman, secretary of the Bremen Party Line Telephone Co.; Richard Walter, owner of the Hammond Telephone Co., and Mrs. Goertz, on or before September 7.

V V

Summary of Commission Rulings and Hearings

Federal Communications Commission

August 24: Granted American Telephone & Telegraph Co., New York City, special permission to waive filing Tariff FCC No. 69 no later than September 1.

California Railroad Commission

August 31: Hearing on application of Interstate Telegraph Co. for authority to adopt through or direct toll telephone message rates in Inyo and Mono counties, for intrastate toll telephone message interchanges with Southern California Telephone Co., Los Angeles.

August 31: Hearing on complaint of William Michel seeking revision of boundaries of Kerman (Calif.) Telephone Co. so that Pacific Telephone & Telegraph Co. may service Fresno area.

August 31: Hearing on application of Grace E. and F. F. Warren to sell telephone property of McFarland (Calif.) Telephone Co. to Fred C. and Gladys A. Mitchell, and for latter to mortgage property.

August 31: Order of dismissal on commission's investigation of rates of Public Utilities California Corp. at Susanville.

Kansas State Corporation Commission

June 11: Granted authority to Farmers Mutual Telephone Co., Burr Oak, to make certain rate changes for switching service there.

July 31: Granted Wetmore (Kan.) Telephone Co. authority to make rate changes.

September 4: Issued Southwestern Bell Telephone Co. certificate relating to proposed issue of $75,000,000 debentures.

September 4: Heard and advised application of Cambridge (Kan.) Telephone Co. for authority to make certain rate changes for switching service there.

September 18, 19 and 20: Hearing on application of Southwestern Associated Telephone Co., Lubbock, Tex., for increased rates at Oklahoma exchanges. Postponed from September 4, 5 and 6.

Minnesota Railroad & Warehouse Commission

September 17: Hearing on application of Farmers Interurban Telephone Co., Rock Dell, for authority to increase rates.

New York Public Service Commission

September 12: Hearing on petition of Warwick Valley Telephone Co., Warwick, for authority to issue $28,000 unsecured notes.

September 13: Hearing on petition of Mary S. Chambers and Aileen Sheldon, administering estate of Royal S. Chambers, for authority to sell Nicholville (N. Y.) Telephone Co. to Mildred Matthews.

Wisconsin Public Service Commission

September 13: Hearing on service complaint of Edmund Porter against Wisconsin Telephone Co., Milwaukee.

September 13: Rehearing on complaint of Henry Denessen against Wisconsin Telephone Co. concerning rates at Green Bay.

September 14: Hearing on service complaint of Will Sue against Belmont-Pleasant View Telephone Co., Belmont.

V V

File for Higher Rates

The Darlington (Ind.) Telephone Co. and the Patricksburg (Ind.) Telephone Co. on August 21 and August 10, respectively, filed petitions for increased rates with the Indiana Public Service Commission. Hearing dates have not yet been set.

Tidewater Company Names Pulley Commercial Manager

Lloyd C. Pulley, Jr., former manager of the Gloucester division of the Virginia East Coast Utilities, Inc., on October 1 will assume the position of general commercial manager of the Tidewater Telephone Co., operating in the Northern Neck of East Coast Telephones, Inc. (TELEPHONY, August 18, page 27.) His resignation from the former position became effective September 15.

A native of Ivor, Va., Mr. Pulley began work with Virginia East Coast Utilities, Inc., there, as a lineman, July 26, 1926. He later was transferred to Urbanna, Va., where he served as night power plant operator. Going to Waverly in 1927 as foreman of a line crew, he was appointed manager of the Waverly division in January, 1928.

In February, 1930, Mr. Pulley was transferred to Gloucester as division manager of the Gloucester division, which at that time included all of the company's holdings in Gloucester, Mathews, Middlesex, King and Queen and King William counties. In April, 1938, he became division manager of the Gloucester division for East Coast Telephones, Inc., in addition to his duties as manager of the Virginia East Coast Utilities, Inc.

V V

OBITUARIES

EDWARD W. JONES, 49, owner and operator of the Stella & Stark City Telephone Co., Stella, Mo., died August 11 of heart failure while at work.

He is survived by his widow, a son, his parents and a sister.

* * *

WILLIAM EDSON OVERHOLT, 73, who retired in 1943 after 33 years of service with the Indiana Associated Telephone Corp. at Elkhart, died August 25. He had been in poor health for several years.

Survivors are his widow, a daughter, four grandchildren, two great-grandchildren and a brother.

* * *

MRS. JESSIE S. TUFTS ROSE, 84, operator of the first telephone exchange in Manchester, Conn., now serviced by the Southern New England Telephone Co., died August 26 at the home of a daughter.

She leaves two sons and two daughters.

* * *

MRS. AMELIA M. FLIGLE, 77, Cleveland, Ohio's first long distance telephone operator, died September 5 in a nursing home there.

A native of Rochester, Pa., Mrs. Fligle began her work in the then infant telephone business with the old Cleveland Telephone Co. on January 8, 1883. She was one of the first operators in town. On December 1, 1901, Mrs. Fligle transferred to the Long Lines Department of the American Telephone & Telegraph Co., where she became the city's first long distance operator. She was made chief operator of the company on January 1, 1902, and held that position until her retirement on October 15, 1914. She was a member of the Telephone Pioneers of America.

Surviving her are two sons, three daughters, a sister and a nephew.

* * *

VAUGHN P. THORP, 51, an electrical engineer for the Bell Telephone Laboratories, Inc., New York City, who had been an instructor in radar courses in the company's school for war training since 1942, died at Ridgewood, N. J., September 5, of a heart attack. He had been in poor health since last November.

Born in Warren, Ind., he served in the air corps for 1½ years in World War I and was about to be commissioned when the conflict ended. He was graduated from Purdue University with a B. S. degree in electrical engineering in 1919 and that year joined the Bell System.

He served the New York (N. Y.) Telephone Co. in its engineering department during 1919-21. From 1921 to 1934, he was engaged in high frequency and voice frequency work for the development and research department of the American Telephone & Telegraph Co. He joined Bell Telephone Laboratories, Inc., in 1934 for field and office design work.

Mr. Thorp leaves a widow; a brother, Lieut. Col. Kermit O. Thorp of the Army Air Forces, a member of the Bell Laboratories on leave, and two sisters.

* * *

CLAUDE CUSTER ROSE, 62, patent attorney for the American Telephone & Telegraph Co., New York City, died at his home in Rye, N. Y., September 4.

Born in Duvall, Ohio, Mr. Rose was graduated from Ohio State University in 1905 and studied at George Washington Law School.

He leaves a widow; a son, Lieut. Cmdr. Robert C. Rose of the Coast Guard; a daughter, Mrs. Chandler L. Stevens, and two brothers, Lynn C. Rose of Worthington, Ohio, and Rear Adm. Earl G. Rose of the Coast Guard.

* * *

ROY Y. PELLINGTON, 58, for a quarter of a century associated with his father, W. H. Pellington, in the management of the Sharon (Wis.) Telephone Co., died recently of a heart ailment. He had suffered the ailment four years and had been hospitalized for eight months.

Born in Sharon in 1887, he moved to Decatur, Ill., with his parents, studying music under Professor Walters at Milikan University.

At the beginning of World War I, he moved to Sharon to become associated with his father in managing the telephone company there.

Surviving are his widow, parents, three daughters and three grandchildren.

V V

Southern Bell Man Receives Legion of Merit Award

Col. George W. Wray, formerly employed by the Southern Bell Telephone Co. at Charlotte, N. C., has been awarded the Legion of Merit by Maj. Gen. H. C. Ingles, Chief Signal Officer, for outstanding services as commanding officer of the Dayton (Ohio) Signal Depot, and as commanding officer of the Storage & Issue Agency at Philadelphia, Pa.

Colonel Wray expects to be placed on inactive status December 1, at which time he will report to Southern Bell headquarters at Atlanta, Ga.

V V

Loses Consciousness When Wires Come Into Contact

Knocked unconscious August 20 by the contact of a wire he was stringing and a power line, George Funk, veteran employe of the Germantown (N. Y.) Telephone Co., two days later was reported recuperating at his home. He suffered no burns.

Several telephone lines in the area were put out of service as a result of the contact of the two wires.

HELP WANTED

The aid of TELEPHONY readers is sought in helping us obtain one copy of each of the following back issues of TELEPHONY: December 11, 1937, February 11, 1939, and March 25, 1939.

Anyone who can furnish us with these issues will have his TELEPHONY subscription extended six months for each issue. To avoid our receiving more than one copy of each issue, we suggest you write us, giving your issue's date, before sending same.

Germany's Telephone System Rapidly Being Restored

Communications Division, US Group CC, Berlin, Germany—Germany's war-battered telephone system rapidly is being restored for essential civilian use in the American zone of occupation in Germany. A report released August 25 from the office of Brig. Gen. Samuel W. Thomas, director of the Communications Division of the U. S. Group Control Council for Germany, gave facts and figures on progress made in the four months of operations.

In the Eastern Military District of the zone, telephone service has been re-established in all except three of the principal cities. In these three towns—Wurtzburg, Ansbach and Beyreuth—destruction is so complete that entirely new facilities will have to be installed.

The Bremen Enclave, main German port of embarkation for American troops, has nearly 2,000 telephones in service for doctors, city officials, fire and police department heads and others deemed "essential users" by military government authorities.

Restoration of telephone service in the American sector of Berlin is well underway, despite the great damage sustained during both the bombings and the battle for the city. The telephone system already is working at more than 30 per cent of prewar capacity and this figure is being increased daily.

Frankfurt, one of the largest cities in the American zone, is served by a civilian network of 594 telephones. In the Kreiss of Unterbahn, according to the report, all burgemeisters are in direct telephonic contact, and, in addition, the small towns there have local civilian service. Final work on a 150-telephone system in Kreiss Obertaunus is expected to be completed shortly, and the telephones should be in use in the near future.

Long distance service has been reinstituted, with 34 repeater stations now in operation. Two stations at Stuttgart and Gaildorf, which were completely destroyed, have been replaced by mobile stations. Repair of the many miles of long distance cable has been speeded and semi-permanent rehabilitation of all lead covered cable was to be complete by about the first of September. Although security measures have kept civilian use of long distance lines to a minimum, U. S. officials in the zone have 61 circuits to the British occupation sector, 19 to the French, and 16 to the Russian, as well as 17 to the jointly-occupied Berlin district. Contact with Austria, Belgium, Czechoslovakia, England, France, Italy, Luxembourg and Switzerland also has been made available to the American occupation forces.

This swift job of restoration and repair in the entire U. S. zone has been carried out under Communications Division supervision. Severe shortages of such material as replacement parts and high-grade cable, as well as vehicles and fuel, have failed to stop the work. Screening of former telephone employes continues, with the elimination of all whose records show Nazi-party association and return to their jobs for those whose record is clean.

V V

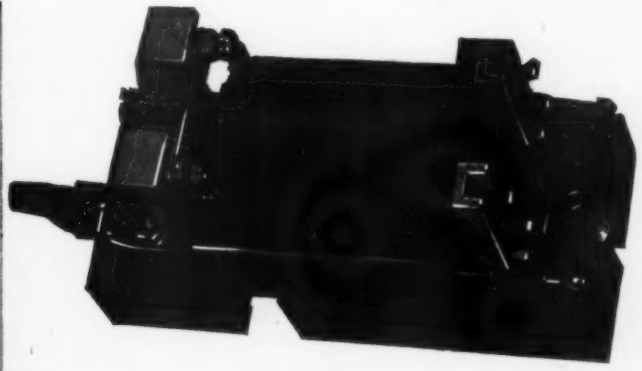
Erects First Outdoor Booth In New England Area

The first public outdoor telephone booth in the New England area recently was erected by the New England Telephone & Telegraph Co. at Newton, Mass., as an experimental station.

The telephone company explained that if it proves successful, similar outdoor booths will be placed at numerous other sites in the New England territory.

FAHNESTOCK ELECTRIC COMPANY, INC.

Type 3-A Arrester Relay



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WESTERN RAILROAD SUPPLY COMPANY

2360 SOUTH ASHLAND AVENUE

CHICAGO 8, ILLINOIS

● For years there has been a definite need for the use of a protector of the type illustrated above. Its particular adaptation is on rural and toll lines where they parallel power lines for a considerable distance. Many REA lines are strung parallel with rural and toll lines throughout the country. Arrester Relay No. 3-A is the answer.

JAPS COULDN'T FOIL SIGNAL MEN ON IE SHIMA

By S/SGT ROBERT W. HARVEY
Marine Corps Correspondent

Ie Shima (Delayed).—It is the telephone system on which anything can happen and everything usually does. The one on this tiny mote of land, just off the northwest coast of Okinawa, is no exception.

Its linemen frequently interrupt their work to fire at Jap prowlers.

Its switchboards are manned by operators working on occasion waist-deep in water.

Its lines frequently are cut by Jap knives and bombs.

But despite all the hazards of this rocky, crabbed little island, telephone crews of a Marine air wing not only have kept their lines open, but they have proved to be the most efficient of a score of Army, Navy and Marine exchanges.

And, with three switchboards and 50 miles of line, their telephone system is still growing.

The network is no battlefield makeshift, but a regular telephone and teletype system built to operate indefinitely.

On them depend the communications vital to bombers and fighters flying not only from Ie Shima fields, but also those on Okinawa.

Because Ie Shima, forever to be associated with the name of Ernie Pyle, must maintain constant contact with command echelons on Okinawa, the telephone crews must operate radio-telephone and radio-teletype circuits through their regular switchboards and land teletype lines.

Even before construction work started, the Marines ran into trouble. Transports carrying their equipment were unloaded during an air raid alert. The job was a bit hasty, and most of the telephone gear was lost or badly damaged. Next day, the 16-man telephone crew borrowed wire, tape and batteries, salvaged what equipment they could, and went to work.

The men, directed by Lieut. Donald C. Reames of Stratton, Neb., quickly found that their previous experience in the Marshall Islands did them little good.

The Marshalls had ready-made poles in their palm tree trunks, the distances were small, and a telephone man's life was a sinecure. Ie Shima had bleak peaks and great open spaces. Also, the telephone men's territory never had been cleared completely of snipers or mines.

After three days of stringing wires from peak to peak along the rocks and cliffs, of stepping gingerly among the land mines and of replacing the wire broken by bulldozers, the telephone system was ready. That night, Japs came out of the hills and cut away 20 ft. of wire.

Repairing the wires, linemen had to take time out to fire at Japs.

As the system was extended, the men worked in rainstorms that threatened to flood boards and wires. Lightning struck the lines, decorating switchboards with dancing blue lights. Jap planes dropped bombs that uprooted the wires.

One group of operators on duty at a switchboard set up near a deep cave that ran too far back into the cliffs to be explored completely was kept on edge by Jap prowlers who, night after night, skulked around their tent. But they stayed on their jobs.

All the operators sweated out constant air raids seated at their switchboards, while other men were hitting the foxholes.

One day, a typhoon swept the islands, deluging a dugout switchboard. The operator, in water up to his waist, camly kept vital messages moving.

After another storm, Sgt. Harvey W. Davidson of Syracuse, N. Y., worked for hours over a line that rang perfectly, yet would carry no voice signals. Checking every inch through the mud and rain, he found the wire was cut in two places. The broken ends of both cuts were in puddles. The water completed the circuit for the ring, but not for the voices.

Each man in the section is receiving a special letter of commendation from his commanding officer, Col. Daniel W. Torrey. Chances are, though, that they'll hardly have time to read them —they'll be too busy seeing that the lines stay open.

V V

Independent Manager Resigns

MRS. O. B. EELLS, manager for 16 years of the Wellsburg exchange of the Iowa State Telephone Co., Newton, recently announced her resignation due to ill health.

Across rocky, rugged little Ie Shima, Marine telephone linemen string and repair the wires that are the lifelines of this advanced U. S. air base. Mud, rain and enemy bombs constitute a few of the problems they have overcome to hang up the best record of any telephone unit on the island.

Lifeboats Now Hold Conversations at Sea

The day of telephone conversations between lifeboats at sea has arrived.

In its campaign to develop and improve safety equipment for use aboard cargo vessels, the U. S. Maritime Commission has cooperated in the design of a new transmitter-receiver for use in lifeboats. It can be operated by non-skilled men and will be equipped for two-way manual radio telegraph and radio-telephone, also automatic radio telegraph transmission. The transmitter-receiver is operable entirely by the use of a hand powered generator.

The unit is entirely waterproof and embodies the use of balloon and kite antennas with a range above 1,000 miles, when used on the high frequency band.

V V

Resume Transatlantic "Social" Calls from Great Britain

Transatlantic "social" telephone calls were resumed from Great Britain to the United States and Canada, effective August 24, "on a very limited scale," the British postmaster general announced recently.

Officials believed that United States and Canadian service men desiring to call their homes would be given priority.

V V

To Complete New Exchange Building by 1947

The Dunkirk & Fredonia Telephone Co., Fredonia, N. Y., which recently purchased a site for a new central exchange building, expects the new edifice to be ready for occupancy early in 1947, when the lease on the present exchange building expires, Arthur R. Maytum, company president, stated.

He said that construction materials had been promised so that completion of the structure, which will cost about $170,000, can be made by that time or earlier. He added that the present telephone system probably would be converted to dial operation and that considerable new cable work would have to be installed in the village.

V V

Air Farmer Crashes into Telephone Line

"It didn't seem possible that poles so far apart would carry wires," Jack Adams of Riverside, Calif., said when he emerged unscathed from a recent airplane crash.

He had been flying a few feet above the ground peacefully spreading insecticides over pea, bean and alfalfa fields when his plane struck a telephone line and was demolished.

How Existing Equipment Can Produce More Revenue

Telephone companies throughout the country have found that, when subscribers install Teletalk Intercommunication as a supplementary system for inside calls, existing switchboards and lines are freed for more revenue calls.

Teletalk not only helps keep lines clear, but speeds customer service and general efficiency wherever used. A subscriber can get desired information on orders, accounts, credits, stock, and other matters over his Teletalk while he is on the telephone. Savings in time and effort are substantial—much waste motion, errors and delays are eliminated.

Encourage your subscribers to install Teletalk—and sell them the equipment. There are many models for many needs—a two-office suite or a ten-acre plant can profitably use Teletalk. First cost is moderate; installation is easy; maintenance is negligible. Write today for full information.

Let's All Back the Attack
Buy Extra War Bonds

Licensed under U. S. Patents of Western Electric Company, Incorporated, and American Telephone and Telegraph Company

WEBSTER ELECTRIC

Racine, Wisconsin, U.S.A. • Established 1909 • Export Dept.: 13 E. 40th Street, New York (16), N. Y. Cable Address "ARLAB" New York City

"Where Quality is a Responsibility and Fair Dealing an Obligation"

BRIGHTER, STRONGER TOO . . . . Tungsten gives a high initial surge—lights up quicker than any other type of filament—needs only 1/5th second to bring cold resistance up to hot resistance value. That's *one* good reason switchboard operators prefer Sylvania Tungsten Telephone Lamps—*they're faster!*

And here are *two more* good reasons: they're brighter . . . because light is whiter, yet never too intense—they're stronger . . . these lamps have a rated average laboratory life of 1,500 hours.

Sylvania Tungsten Telephone Switchboard Lamps fit standard sockets and can be used in any type of switchboard. Available now in clear. Natural ruby and natural green will be available soon.

SYLVANIA ELECTRIC

SALEM, MASSACHUSETTS

MAKERS OF FLUORESCENT LAMPS, FIXTURES, ACCESSORIES; ELECTRIC LIGHT BULBS; RADIO TUBES; CATHODE RAY TUBES; ELECTRONIC DEVICES

Committee Recommends Adoption Of Rural Line Extension Policy

The committee of the New York State Telephone Association studying the effects of the suggested rural line extension policy recently adopted by the New York (N. Y.) Telephone Co. has made known its recommendations for consideration by Independent telephone companies. The companies were asked to advise the New York Department of Public Service of their attitude toward the adoption of such a plan.

Under the plan referred to, the telephone company would construct one-half mile of pole line, without charge, for each applicant and a charge of 48 cents a month per one-tenth mile would be made for line extensions in excess of one-half mile for a period of five years. Group arrangements are provided for in the plan to cover new applicants within a specific project.

The committee report recommended that the plan be adopted by Class A, B, and C telephone companies and stated that "no purpose would be served by any company refusing to adopt a more liberal rural line extension policy."

The report recommended modifications in the suggested plan which would give the company the privilege of requiring applicants to make an advance payment equal to the total amount of the monthly construction charge payments, less 10 per cent when there is doubt of the applicant's financial responsibility or the permanency of the service applied for. It also recommended the company have the right to require an applicant to sign a supplemental agreement to retain the service for a five-year period when there is reason to believe that such applicant may cancel the service after the line has been constructed.

A copy of the committee's report has been sent to A, B, and C companies and it is understood that a majority of replies have been received by the commission, evidencing the companies' willingness to adopt the plan for rural line extensions.

V V

Buys New York Company

R. E. Casselman, president of the Sanborn (N. Y.) Home Telephone Co., has taken over the West Valley (N. Y.) Telephone Co. The West Valley company formerly was owned and operated by H. W. Kruse.

V V

Sells Arkansas Independent

The sale of the Gould (Ark.) Telephone Co. by W. M. Reddin, owner, to Obie Holland of Gould, recently was announced.

USITA Advertising Committee Plans Future Activities

The United States Independent Telephone Association Advertising Committee held a meeting August 17 in the La Salle Hotel, Chicago, to plan future advertising copy and additional services for subscribing telephone companies.

Among other business, the committee accepted the resignation of Mrs. Betty Gray Nystrom, account executive of the Telephone Advertising Institute, who expects to leave shortly to reside in Santa Cruz, Calif., and approved the selection of Elinor Bishop to succeed Mrs. Nystrom. Miss Bishop has acted as Mrs. Nystrom's assistant for the past year and is very well qualified to handle the work of the institute.

Leon F. Roberts of Jamestown, N. Y., chairman of the advertising committee, on behalf of its present and former members, presented Mrs. Nystrom with a $50 war bond as a symbol of the affection, esteem and high regard in which she is held, and expressed the regret of the committee that she found it necessary to leave the post which she so capably has filled.

The committee voted to hold another meeting in Chicago on or about October 1 to present, in person, the committee's annual report to the board of directors of the USITA which will meet at the Hotel Stevens in Chicago on October 2 and 3.

Those who attended the committee's meeting were: Verne B. Clark, Pekin, Ill.; Frank D. McCarthy, Erie, Pa.; C. C. Pearce, Riceville, Iowa; R. C. Reno, Chicago, and Mr. Roberts. Unable to attend were J. Hartwell Jones, Tampa, Fla., and Carl Spaid, Kansas City, Mo.

Representing the institute, in addition to Mrs. Nystrom and Miss Bishop, was Nathan Jacobs of Bozell & Jacobs, Chicago.

V V

Nutrition Taught Through Correspondence at Quebec

An experiment in nutrition courses by correspondence recently was made by the Bell Telephone Co. of Canada at Joliette, Quebec, where 21 employes, including the local manager, took part in a six-week nutrition course.

Mrs. M. M. Dawes, director of nutrition courses, explained that this was the first experiment that had been made in conducting correspondence courses, although standard nutrition courses are given as well. The instructor went to Joliette to initiate the classes and distribute nutrition information to the students. All following lessons were covered by the students through correspondence with the instructor at Three Rivers, Quebec.

HANG THE LOAD ON HUBBARD HARDWARE
Distributed by 172 Leading Electrical Jobbers located throughout the U. S.
"There is One Near You!"
HUBBARD
HUBBARD AND COMPANY
PITTSBURGH . . . OAKLAND CALIFORNIA . . . CHICAGO
MANUFACTURERS OF A COMPLETE LINE OF HARDWARE FOR TELEPHONE REQUIREMENTS SINCE 1900

STROMBERG-CARLSON RECOMMENDS...

DIAMOND C POLES

For Strength

Mfd. by Colfax Lumber & Creosoting Company, Inc.

For the greatest strength in poles, use COLFAX Creosoted Yellow Pine Poles.

The poles are treated full length under pressure with the finest and cleanest obtainable grade No. 1 Creosote Oil, a pure distillate of coal tar, in accordance with AWPA standards.

Each pole, after being carefully graded according to the physical specifications, is treated with eight pounds of creosote, or more if the customer desires.

COLFAX Creosoted Yellow Pine Poles will assure you the lowest annual pole cost obtainable.

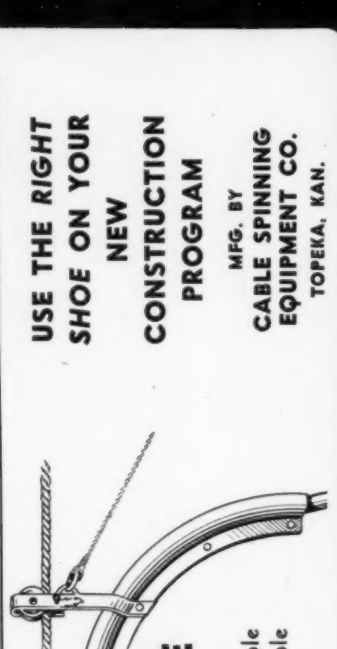
For strength and economy, use

DIAMOND C

Creosoted Yellow Pine Poles

USE THE *RIGHT* SHOE ON YOUR NEW CONSTRUCTION PROGRAM

MFG. BY CABLE SPINNING EQUIPMENT CO. TOPEKA, KAN.



NEALE CABLE PLACING SHOE

SAVES TIME AND MONEY

Made of cast aluminum with steel brackets and pins. Removable pins in wheel brackets permit shoe being removed from cable and strand quickly and easily.

STROMBERG-CARLSON — PROGRESS IN TELEPHONY

STROMBERG-CARLSON COMPANY

Factory and General Offices: Rochester 3, New York, U.S.A.
Branch Offices: Chicago, Kansas City, San Francisco, Toronto

Service Over Power Wires

(Continued from page 15)

considered throughout the studies and tests. Thorough provision has been made not only for protecting the subscriber's telephone equipment from the high line voltages, but also for preventing the presence of carrier from reacting on the power apparatus or personnel.

Through all these studies the engineers have had in mind the necessity for designing the special equipment, couplers, tap choke coils, and so forth, in such a way as to avoid any interference with the normal functioning of the cycle power system. For example, the impedances of these devices at 60 cycles must be such that they do not interfere with the normal transmission of power over the line. They must be able to withstand short circuit currents and they must meet the same requirements for lightning protection that other power equipment is required to meet. All these factors were included in the design of the experimental apparatus.

Experimental carrier equipment was applied to the test line, and a practical demonstration of talking between a subscriber's set equipment and a central office or other telephones beyond the central office was made. This equipment also provided for operation between two-party line sets on the same carrier network without necessarily talking through a central office.

In the joint study, it was found that a severe limitation is placed upon ringing and dialing caused by static interference, particularly at times of nearby storms. This phase of the problem has not yet been solved completely.

The equipment on the subscriber's premises *(Fig. 5)* probably will consist of an ordinary telephone instrument connected by the usual cord to a small wall-mounted set which will contain the vacuum tubes and the circuits for carrier transmission and reception. Power for operating the carrier set will be obtained from the ordinary commercial house service. At least a part of the set must be energized continuously so as to be ready to receive calls at all times. Measurements made at the time of these early tests indicated that the power consumption under idle conditions would be less than 30 watts, and that during

talking conditions, it would be somewhat over 30 watts. These figures undoubtedly will be considerably reduced, for such apparatus as ultimately will be used.

At the telephone central office, there will be a similar transmitting and receiving set and, in addition, provisions for connecting to the conventional switchboard or dial system. A general schematic of the power distribution line equipped for rural carrier is shown in *Fig. 6*.

The foregoing is only a brief review of the results set forth in the preliminary reports. It will serve, however, to indicate the progress made in the joint study up to the time the war began.

The large question remaining is: Can this be done at a cost which is justifiable in comparison with other means of providing rural telephone service? To answer this question, one must have answers to several others. For how low a cost can satisfactory equipment be made? How much maintenance will be required and how will it be done? What will be the life of such equipment, particularly the vacuum tubes? These questions still were to be answered when the joint work was interrupted. They require further examination and additional field data for their solution, and this study has been awaiting the end of the war.

In summary, it might be said that rural power line carrier is in the breadboard stage of development. The technical problems are recognized and evaluated, and means of solving them are known. The development of a practical working system lies ahead.

V V

Resolution Requests Telephones For Fire Chiefs and Marshals

A resolution requesting the New Jersey Bell Telephone Co., Newark, to make telephones available for all fire chiefs and fire marshals as a public safety measure, was passed unanimously on August 10 by the Camden County Fire Chiefs' Association.

It was pointed out that some fire officials in the county have been unable to get telephones installed because of alleged priorities of industry. The officials are required, it was stated, to take their turn on a waiting list for telephone installation.

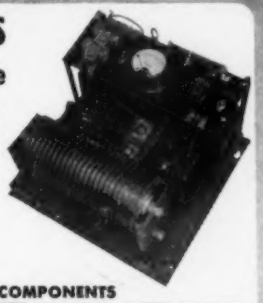
V V

Operator Resigns

MRS. EDNA MCCLAIN, operator at the Waldo exchange of the Natoma (Kan.) Central Telephone Co., resigned, effective September 1, because of ill health.

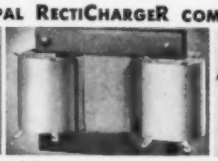
NO MOVING PARTS
Assure Long RectiChargeR Life

There are no moving parts in a Raytheon RectiChargeR . . . nothing to cause trouble or require constant maintenance. It functions constantly and efficiently, carrying the normal load and keeping the batteries fully charged. A Raytheon RectiChargeR and batteries provide an automatic A.C.-D.C. power system. Write for bulletin.



PRINCIPAL RECTICHARGER COMPONENTS

AC Stabilizer—makes the RectiChargeR independent of AC line voltage fluctuations from 95 to 130 volts—a magnetic unit.



DC Stabilizer—automatically insures constant voltage output even if the load varies from full load to zero—a magnetic product.

Dry Disc Rectifying Units—Copper Oxide rectifier elements have no expendable parts, thus assuring long life.

STROMBERG-CARLSON
Recommends...

ARMSTRONG'S
"Whitall Tatum"
Glass Insulators

Conform to—or exceed—A.S.T.M. standards

107 years of glass-making experience are back of Armstrong's "Whitall Tatum" Glass Insulators—made by the Armstrong Cork Company.

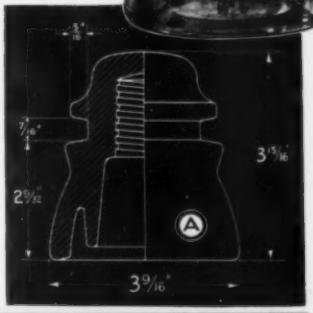
TOUGH!

Armstrong's Glass Insulators withstand all weather conditions. In torrid heat . . . in extreme cold . . . in deluge . . . in blizzard . . . these rugged insulators have proved they can "take it."

Tests show that transverse strength exceeds that of supporting pins.

Other characteristics of Armstrong's Glass Insulators are:

Accurate dimensions
True pin fit
Crystal clarity



STROMBERG-CARLSON COMPANY
Factory and General Offices:
Rochester 3, New York, U. S. A.
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Chicago, Kansas City,
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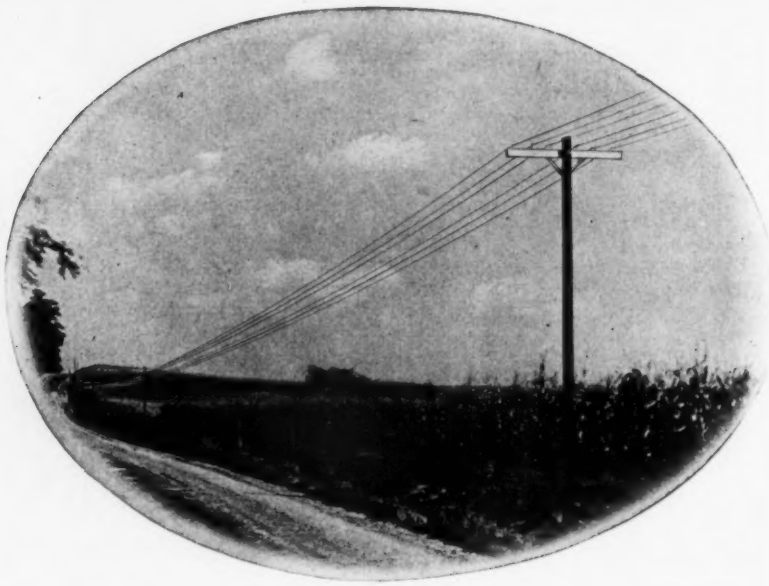
35% SAVING
IN COST OF RURAL LINES



Crapo High-Tensile Line Wire
The Key to Economical Expansion

Savings up to 35% are reported where *Crapo* High-Tensile Telephone Line Wire has been employed in rural construction. Such economy will be an important consideration in the rural expansion program which lies ahead.

Long-span construction, made possible by the development of *Crapo* High-Tensile Line Wire, results in three-way savings. You save materials because fewer pole structures are needed. You save time and labor because there is less hauling required, less material to be installed and connected. You save on maintenance because *Crapo* High-Tensile Line Wire has a higher factor of safety and because fewer pole structures are involved.

Furnished in Two Strengths

Crapo HTL-135 Line Wire has two and one-half times the strength of B.B. wire; makes possible spans of 350 feet in Heavy Loading to 500 feet in Light Loading districts. *Crapo* HTL-85 (No. 12 B. W. G.) has 60% greater strength than B.B., provides for spans of 225 feet in Heavy, 375 feet in Light Loading areas.

Ask for Technical Data!

Contact your distributor of *Crapo* Galvanized Telephone Wire and Strand or write for Bulletins No. 201 and No. 202.

INDIANA STEEL & WIRE COMPANY · MUNCIE, INDIANA

Elect L. E. Lattin Ohio Bell Vice President

Leroy E. Lattin of Cleveland recently was elected vice president and general manager of the Ohio Bell Telephone Co.'s northeastern area at a meeting of the company's board of directors in Cleveland.

Mr. Lattin succeeded John A. Greene of Cleveland, whose promotion to the position of operating vice president recently was announced. (TELEPHONY, September 1, page 40.) Mr. Greene, in turn, succeeded Franklin M. Stephens, who left the position of Ohio Bell operating vice president to become president of the Wisconsin Telephone Co., Milwaukee.

L. E. LATTIN

The directors also elected Mr. Greene a member of the board of directors and a member of the board's executive committee. The changes became effective September 1.

The Ohio Bell northeastern area, of which Mr. Lattin now is executive head, covers the northeastern part of Ohio, including Cleveland, Akron, Youngstown, Canton, Massillon, Alliance, Painesville, Ravenna, Kent, Salem and adjacent territory.

Carlton W. Schnell, a member of the Ohio Bell organization since 1929 and for the past four years its general commercial training supervisor in the northeastern area, was named to succeed Mr. Lattin as general commercial manager of that area.

V V

Ad Says Service Depends On Available Facilities

The North State Telephone Co., High Point, N. C., recently advised applicants for telephones, in a newspaper advertisement, that such installations would depend upon facilities available in their immediate neighbor-

hoods and the date of their applications, which are being graded according to the War Production Board schedule in the order of essentiality.

The following facts were stressed in respect to new telephones:

"A telephone system is a 'handmade' job. Therefore, when it comes to expanding a telephone central office, especially when expansion has been stopped for over three years, and, as a result, many thousands of persons are waiting for service, mass production methods are not possible.

"After reconversion and the vast equipment manufacturing processes are completed, cables, wires and intricate equipment must be connected individually, without interrupting present telephone service. Millions of connections must be soldered.

"To meet present and future demands for service, North State is engineering the greatest expansion program in its history, starting on the limited scale permitted by wartime conditions and getting more actively under way just as soon as manpower, materials and manufacturing facilities are released."

V V

Views Doctor-Telephone Manager As Interesting Person

Following by several weeks the publication in TELEPHONY, of an editorial concerning Dr. Leander C. Bryan, entitled "Where Did This Company Come From?" the *American* magazine, in its "Interesting People" section, also published an article about Dr. Bryan and the Rutledge (Tenn.) Telephone Co. which he took over in 1936. (TELEPHONY, July 14, page 13.)

The story in the *American* concerning the doctor-manager, which was entitled "Live-Wire Doctor," states in part:

Today the Rutledge Telephone Co., whose switchboard and head office are in the doctor's anteroom, has 198 subscribers and is busy replacing old wall models with dial telephones. The doctor's secretary is the head operator, and all the profits from the 230-mile system go back into new equipment and extension of the service.

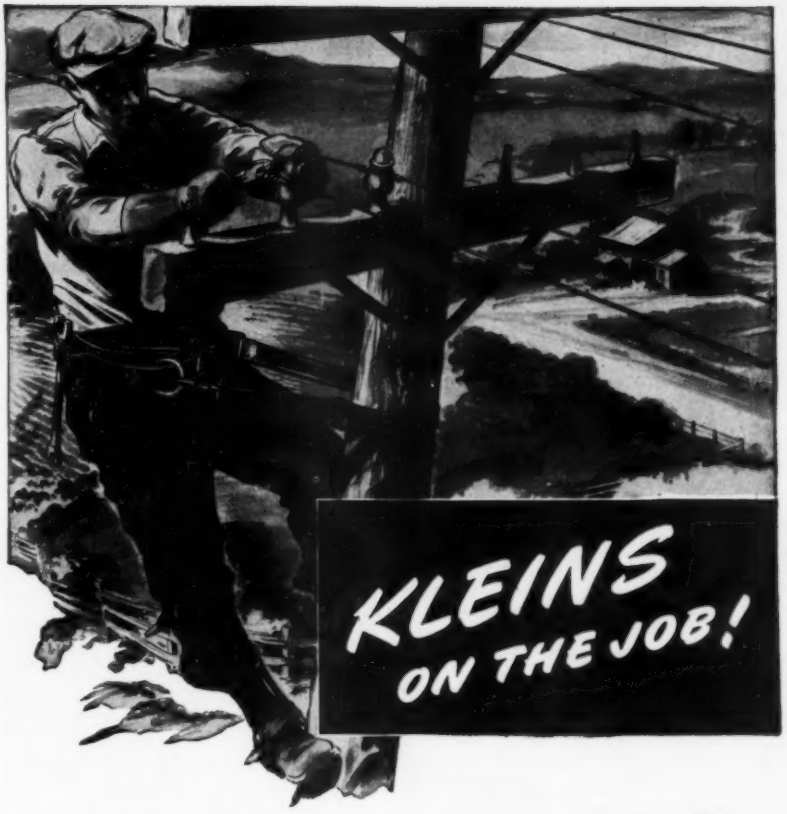
Son of a county judge, Dr. Bryan has been in practice for about 15 years, always in his home town, to which he is greatly devoted. Married, with two children, the doctor has made his wife vice president of the telephone company, and he, himself, is not above plugging in a line when he isn't busy carrying on his medical work.

V V

Japanese Telephone Girls Study English Language

The Tokyo radio August 29 reported an all-out spirit of cooperation toward occupation forces:

"All feminine telephone operators at Yokohama since August 28 are attending classes in conversational English. The telephone bureau also is compiling a telephone directory in English for use of allied occupation forces."



● There's a mighty job to be done on the power and communication lines in America—improving present facilities—extending new lines to bring service to new users—both domestic and industrial.

Utility companies are laying plans now to start this program as soon as conditions permit. And included in their plans are new tools and equipment for the thousands of linemen and electricians required by this development. Klein pliers and Klein equipment will be on the job serving these men in the electrical industry as they have "Since 1857."

ASK YOUR SUPPLIER

Foreign Distributor: International Standard Electric Corp., New York

This book on the care and safe use of tools will be sent on request.

Mathias KLEIN & Sons
Established 1857
Chicago, Ill., U.S.A.
3200 BELMONT AVENUE, CHICAGO 18, ILLINOIS

THIS
Nicopress
SLEEVE

PLUS THIS Nicopress
17-2 TOOL

WILL MAKE BETTER
PAIR SPLICES FASTER
THAN YOU'VE EVER
MADE THEM BEFORE

THE NATIONAL TELEPHONE SUPPLY COMPANY

Ask
YOUR JOBBER

The National
Telephone Supply
Company

5100 SUPERIOR AVENUE
CLEVELAND 3, OHIO
Canadian Mfr.—N. SLATER CO., LTD.,
HAMILTON, ONT., CANADA
Export Distributor
INTERNATIONAL STANDARD ELECTRIC
CORP., NEW YORK, N. Y.

Steal $200 From Safe of New York Independent

Three masked men stole an estimated $200 from the safe at the Old Forge exchange of the Upstate Telephone Co. of New York, Johnstown, August 28, after forcing the lone operator into another room at gunpoint.

The operator, Mrs. Sadie Baker, told state police the three men, faces covered with red bandannas, entered the office from the cellar. While one man ordered her into the next room, the others ransacked the office, she said.

State Police Lieut. E. J. Dougherty said the safe had not been forced. He said the robbers probably found the combination while ransacking desks.

V V

Retiring Ohio Veteran Views Strides in Service

Viewing the strides in telephone service since he built a new Independent company at Georgetown, Ohio, almost 40 years ago, Frank Dunn, retiring superintendent of the Ohio Standard Telephone Co., which purchased the company in 1928, found the most notable change to be the speed of long distance calls.

A call from Georgetown to Cleveland, he said, now takes little more time than a local call, as contrasted with the 30-minute connection period of some years ago. He noted, also, the new cable system over open lead wires, which in the past had troubles which often put lines entirely out of operation.

Answers to Traffic Questions on Page 20

(1) No. The report and the amount of the report charge are passed to the TTC in transferring the call and the OTC enters "no chg" on her ticket to the left of the charge space.

(2) You pass a "no trunk" report and proceed in general as for a BY condition.

(3) The abbreviation for the state is entered in the "calling place" space and in the "called place" space unless the location of a place would be obvious to any person reading the ticket.

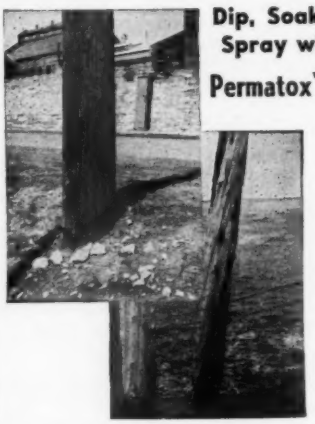
(4) This entry, appearing under the name of a toll center, indicates that the tributary office is not reached over ring down trunks from its toll center, and does not have the same rate block as its toll center.

(5) Toll centers are shown in heavy faced type.

PERMATOX "A"

(A Straight Toxic Wood Preservative)

Reclaim OLD POLES
Preserve NEW POLES



Dip, Soak or Spray with Permatox "A"

Prevent Costly Pole Failures

With the pole shortage becoming more critical, it is vitally necessary to get the utmost service from every pole now in stock or installed on your lines.

PERMATOX "A" (5% pentachlorphenol in suitable petroleum solvents) affords an effective, economical preservative treatment . . . for the control of decay, shell-rot and termite attack.

Specify it for poles, posts, crossarms, ties, crossing planks, bridge timbers and other exposed construction. Soaking or pressure treatment insure adequate absorptions and deep penetration.

Furnished in Two Forms:—

DOWICIDE 7
Pentachlorphenol crystals

PERMATOX "A"
5% Pentachlorphenol in suitable petroleum solvents

Write for Bulletin—Dept. "Y"

A. D. CHAPMAN
& COMPANY, INC.

333 N. Michigan Ave., Dept. "Y"
Chicago 1, Ill.

Atlanta Memphis Portland
New Orleans New York

System Uses Telephone Lines For Critical Operations

New York City's largest telephone user is Consolidated Edison System, which annually makes and receives 30,000,000 telephone calls, the greater part of which are incoming. For that service and the rental of lines and equipment, Consolidated companies pay the telephone company approximately $1,000,000.

Telephone lines perform many important and unusual functions in furnishing electricity, gas and steam to the metropolitan area. In the office of the system operator, the man responsible for electric supply throughout the territory, they are the life lines over which flow vital information to and from all parts of the Edison System. The system operator must be in constant touch with all generating stations and substations in order to meet the city's varying power requirements at all hours and under any circumstances. So essential is this communication that direct telephone wires over which his calls are routed are safeguarded against outage by placing them in four different cables and running each cable through a different street. Furthermore, the cables terminate in two different telephone exchanges.

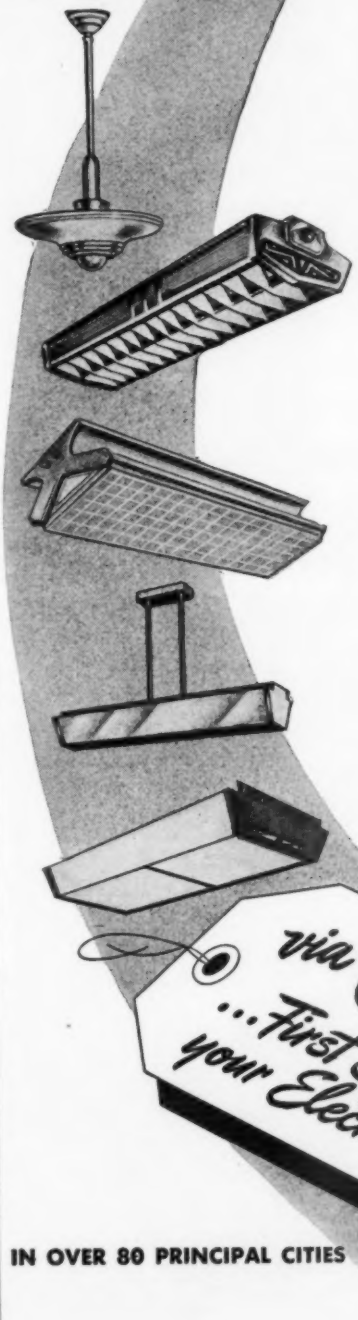
The system operator also has direct telephone lines to New York's important transportation systems—the railroads, subways and elevated lines, served wholly or partially by Consolidated companies; to the city's high-pressure pumping stations, which in emergencies may require additional current to increase water pressure, and to the Niagara Hudson System with which the Edison System exchanges power. Should extraordinary circumstances arise and the system operator be cut off from telephone communication with generating centers, leased telephone wires, carrying, by electric impulse, predetermined messages, such as trouble signals, still would enable him to communicate with them.

Leased telephone wires also carry the electric impulses which "animate" the system operator's board, the huge automatic map of Consolidated territory, which shows by means of different colored lights, colored lines and recording meters what is taking place in distant generating stations and substations and on feeders. Opening and closing of switches in stations activate electro-mechanical devices, which transmit impulses over telephone lines to the board, where they light red or green lamps and sound a warning bell.

One of the world's largest switchboards is located in Consolidated Edison's main office building in Manhattan.

LIGHT

For Your Offices...
Power-Plant Room...
Switchboard Room...
Reception Room



Yes, Graybar is headquarters for all types of *lighting fixtures and lamps* as well as telephone supplies. Here's how you benefit when you make Graybar your "light source": (1) you get local delivery of your choice of the leading makes of incandescent or fluorescent luminaires — Curtis, Day-Brite, Holophane, Leader, Mitchell, Silvray, Smithcraft, Wakefield — and matching G-E Mazda lamps; (2) you get expert aid in determining the most efficient, attractive, and economical way to relight individual rooms or your entire building.

There's a Graybar Lighting Specialist nearby who'll gladly help to supply your present lighting needs or to plan your relighting program. *Graybar Electric Company, Graybar Building, New York 17, N. Y.* 4575

via Graybar ...First Source for all your Electrical Needs

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If you have a tough assignment for DROP WIRE—TRY ACORN
Increased facilities enables us to handle your limited essential requirements now.

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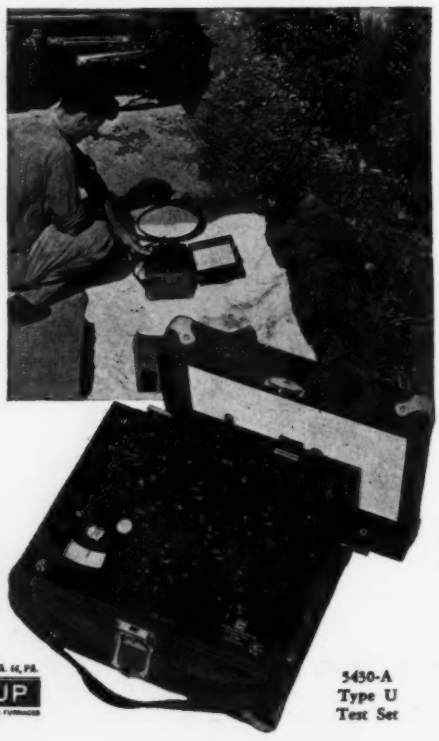
CLEARS TROUBLE IN A HURRY
Averages $6.00 Saving Per Fault

This easy-to-use Wheatstone Bridge puts its finger on faults — locates grounds, crosses or opens — enables trouble-shooters to clear lines or cables in minimum time.

A recent survey among users indicates that this Test Set saves from 1 to 8 hours in locating faults, as compared with other methods. In terms of man-hour cost of trouble-shooting, it saves an average of $6.00 per fault. From this average figure, it appears that after locating 21 faults the instrument has saved enough to pay for itself. After its 21st location, this test set is actually earning money.

These savings, as well as the benefits of subscriber good-will are yours with the purchase of one of these Test Sets. Price is $125.00. If more information is required, write for Catalog E-53-441(1).

A FREE HANDBOOK explaining methods of using this Bridge for locating grounds, crosses, opens and other faults, will be sent on request. Write for Note Book E-53-441 "Notes on Fault Location in Cables."



5430-A Type U Test Set

LEEDS & NORTHRUP COMPANY, 4901 STENTON AVE., PHILA. 44, PA.
LEEDS & NORTHRUP
MEASURING INSTRUMENTS · TELEMETERS · AUTOMATIC CONTROLS · HEAT-TREATING FURNACES
Jrl. Ad. E-53-441(4a)

A 41-position board (largest in New York until the war, when it became second largest), with 165 tie lines to district offices and service buildings and almost 2,000 extensions, last year handled 9,500,000 calls, as many as were handled at Rye, N. Y., with some 10,000 inhabitants.

V V

Bell Telephone Battalion Member on Furlough

S/Sgt. Emmett MacLeod of Weston, Mass., a supply sergeant with the 435th Signal Construction Battalion, recently returned home on a 30-day furlough, his first in three years.

The 435th Signal battalion, the officers and non-coms of which were composed largely of former employes of the Bell Telephone Co. of Pennsylvania, Philadelphia, was one of the most widely known Signal groups in the Mediterranean area and was reported to have received commendation from every commanding general in the Mediterranean Theater of Operations.

Sergeant MacLeod, who went overseas in December, 1942, told of the construction of many miles of standard telephone equipment through Libya, as far as Bengasi, when the unit was attached to the Ninth Air Force. Among the first troops to land in Sardinia in October, 1943, they set up communications in the face of sniper fire although the enemy then had withdrawn from the island.

V V

Endorse Radio-Telephone Service at Massachusetts

Owners of large fleets of trucks and passenger vehicles in Springfield, Mass., have endorsed the projected two-way radio-telephone service for motor vehicles, Lawrence N. Raymond, manager of the New England Telephone & Telegraph Co. there, said August 30.

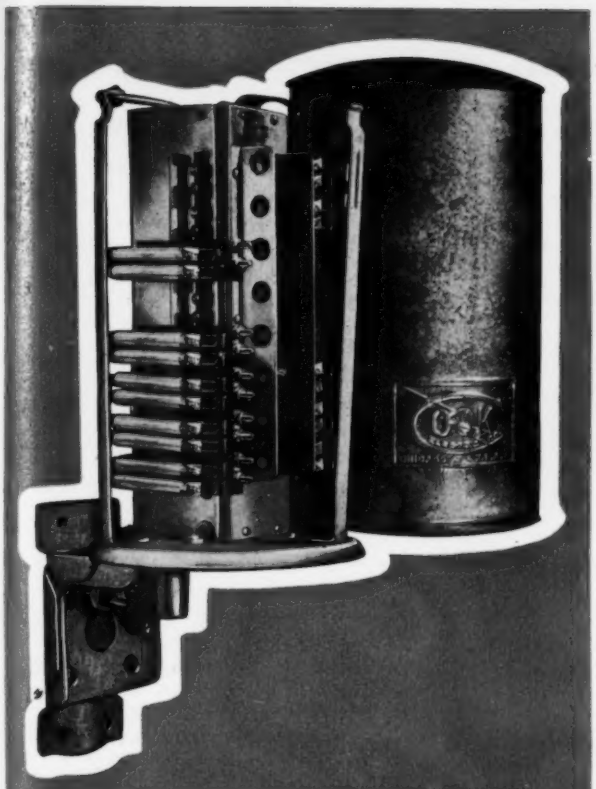
All companies contacted by a recent questionnaire indicated they would subscribe to the service if it were made available and also agreed to tentative rates outlined by the telephone company for such service, which would permit constant contact with all vehicles in the fleet, Mr. Raymond said.

He stated that the survey was being made prior to application to the Federal Communications Commission.

V V

Buys Building Site

The Southeast Missouri Telephone Co., Cape Girardeau, recently purchased the site for a new telephone exchange building at Charleston, Mo. It was stated that building would proceed as soon as materials are available.



S-20

THE POLE CABLE TERMINAL FEATURING THE MAXIMUM IN

- **ECONOMY**
- **CONVENIENCE**
- **ACCESSIBILITY**

IN INSTALLATION, SERVICING AND MAINTENANCE.

The Type S-20 Pole Cable Terminal and Protector Mounting is in wide use as a combined protected and unprotected all steel cable terminal. As part of the Trans-Mount System, the S-20 offers maximum economy because Type H Protector Mounts may be installed as required.

The self-soldering nozzle of the S-20 is located close to the pole to bring the cable behind the subscribers' drops. The mounting base is open at the back adjacent to the pole to prevent accumulations of ice, dirt or moisture. A separate mounting bracket shaped to fit the pole provides easy installation without gaining the pole. Drop wires enter the terminal through individual insulating knockout holes.

Every possible feature of convenience and accessibility for installation, servicing and maintenance has been carefully engineered in designing the S-20. All connections are at the front, the self-soldering nozzle lies close to the pole, a strong guide holds the hood securely in raised position for working ease, and drops are taken out through knockout in an insulating plate to prevent the entrance of birds, insects, dust, etc.

The TRANS-MOUNT SYSTEM

The S-20 Pole Cable Terminal is part of the Cook Trans-Mount System of Protection and Distribution. The Trans-Mount System is composed of the Type S-20 Pole Cable Terminal, the Type R Sub-Station Protector, the Type T Main Distributing Frame, the Type U Utility Sub-Station Protector, the Type UA-20 Aerial to Underground Terminal and the Type IT-20 and Type TN-20 Interior Cable Terminal Vaults, all using the Type H Protector Unit.

2700 SOUTHPORT AVENUE
CHICAGO 14, ILL.

COOK ELECTRIC Company

Holland's Dial Telephones Destroyed by Nazis

The greater part of Holland's dial telephone network has been damaged so badly by the Germans that at least 10 years will be required to restore it, the Netherlands Information Bureau stated recently. During their retreat, the Nazis deliberately destroyed the main dial exchanges in the southern, eastern and northern sections of the country to paralyze allied communications. However, the telephone system in the western part was saved by Dutch telephone workers who fought German attempts to destroy the exchanges just before the Nazi capitulation.

The greatest damage was found in the southern provinces where only 48 of the 162 dial exchanges remained in working order. The busiest exchanges were the ones hardest hit and, as a result, 75 per cent of the subscribers in that area now are without service. Of the 157 hand-operated exchanges, only 66 escaped damage. In the northern and eastern provinces, the damage to the exchanges was somewhat lighter.

Before the war Holland had a very modern dial telephone system. Even rural area subscribers were able to dial almost any town in the country. Now Holland must depend upon the old-style hand-operated exchanges because engineers, due to lack of materials, are able to restore only the most elementary type of service.

Principles of Enduring Business

By JOHN S. ALLEN

X. Make Generosity Genuine

INADEQUATE pay and a minimum of opportunity for advancement are not likely to produce efficient and interested employes. Generous payrolls, based on employe value, usually pay golden dividends in company morale and constructive attitudes.

Generosity in compensation should, however, be genuine generosity. If selfish motives for extra company profits prompt the placing of extra dollars in pay envelopes, the expected profits seldom appear. On the other hand, if bonus and pay increases are sincere acknowledgements of fine service rendered, and are intended solely to add to the enjoyment of the recipient, then unexpected returns are apt to be manifold.

V V

Book Review

Fundamentals, complete in itself, the first volume of Ronald W. P. King's three book series, entitled *Electromagnetic Engineering*, has just been published, making advanced material on the engineering applications of electromagnetic theory readily available to practicing engineers and physicists. Copies of this book may be ordered through TELEPHONY for $6.00.

Fundamentals equips the engineer to analyze practical problems in electromagnetic engineering from the point of view of fundamental physical theory.

Electrodynamics is a new field for the engineer and this book provides him with the tools he needs to understand and keep abreast of the most recent engineering applications of time-proved physical theories.

Included in the book are: A systematic study of skin-effect in conductors and in circular condensers; an analysis of impedance of a condenser at ultra-high frequencies; a chapter devoted to the general analysis of electric circuits, including the radiation from closed circuits; an entirely new and hitherto unpublished general derivation of the transmission-line equations for two and four-wire lines with a detailed study of the problem of radiation from resonant two and four-wire lines.

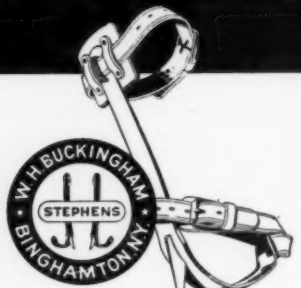
A free copy for your approval may be ordered from the McGraw-Hill Book Co., Inc., 330 W. 42nd St., New York 18, N. Y. At the expiration of 10 days, you may return the book postpaid without obligation, or send your remittance.

V V

Fill Independent Vacancies

HELMER PEARSON recently was elected a director and GEORGE SANDS was made secretary of the Alvarado (Minn.) Telephone Co., taking over the duties of P. H. KULLE who resigned because of ill health.

MAKE SAFETY SIMPLE FOR INEXPERIENCED MEN



Give them BUCKINGHAM Equipment for safety, efficiency and physical comfort. They will be able to do more work — better work.

BUCKINGHAM Safety Equipment is used regularly by leading Utilities and by the U. S. A. Signal Corps. It stands up under the most exacting conditions.

BUILT BY
BUCKINGHAM
OF BINGHAMTON

W. H. BUCKINGHAM MANUFACTURING CO., BINGHAMTON 6, N. Y., U. S. A.

The Benwood-Linze Co., St. Louis, Mo., manufacturers of selenium and copper sulphide dry plate metallic rectifier stacks and rectifier-transformer power assemblies, has announced the election of JOHN C. HENNING, JR., sales manager, to the office of secretary of the company. Mr. Henning is an electrical and sales engineer with many years of broad and diversified experience.

Find Dirty Rats Who Ring Paris Telephones at Night

The practical jokers responsible for Paris telephones ringing in the small hours of the night and awakening irate householders, who find no one on the line, are really dirty rats — hundreds of thousands of them, it was disclosed recently.

With the citizens on short rations, the rodents that infest the city's sewers have not been bothering to come above ground. Instead, they turned to the telephone conduits and their tasty rubber cable coverings. It has just been found, a news service report revealed, that rodents in five years have consumed 13,000 tons of rubber cable wrapping and ruined 10,000 miles of wire.

V V

Urge Return to School

A telephone campaign to induce youths who had forsaken school for war jobs to resume their education was waged recently in Hennepin County, Minn., by superintendents of schools in the county and suburbs, each of whom named a telephone committee to call all 16, 17 and 18-year-old boys in its district, urging them to complete their high school training.

V V

Plans $100,000,000 Growth

The Ohio Bell Telephone Co., Cleveland, has announced plans to spend $100,000,000 in Ohio for expansion and modernization of facilities to include service to 95,000 new applicants.

another Audio Development

Our Variable
SOUND EFFECTS FILTER

One of hundreds of basically different filter types produced by Audio Development, this unit has been designed principally for the use of broadcasting stations and recording studios. The filter consists of a single prototype low pass and a similar high pass filter section, each with eight different cut off frequencies. This permits the selection of a proper cut off frequency for any application. Attenuation of at least 18 DB per octave is obtained for both high and low pass sections with the insertion loss in the pass band less than 1 DB. Coils are individually shielded to permit normal operating levels between −40 and +14 VU. Standard impedance is 600 ohms. Mounting facilities are provided within the unit for transformers, thereby permitting operation in systems of any impedance.

DO YOU HAVE A FILTER PROBLEM?

ADC

Audio Development Co.
2833 13th Ave. S., Minneapolis, Minn.
"Audio Develops the Finest"

Kellogg Engineer Returns From War Theater

Don H. Erickson, Kellogg Switchboard & Supply Co. engineer, has returned to duty at the company's Chicago, Ill., plant after 11 months with the U. S. Army Signal Corps in the European war theater.

Serving as technical observer in identification, repair, installation and operation of army telephone switchboards, Mr. Erickson maintained his headquarters in Paris. Other cities covered in his duties were Cherbourg, Le Havre, Lille, Rheims and Rouen, in France; Antwerp in Belgium, and Frankfurt, Nurnberg and Munich in Germany. His work carried him over the entire strategic battle areas of the war theater to which he was assigned.

Mr. Erickson holds a degree in electrical engineering from the University of Minnesota and has specialized in communications. He has had experience as a lineman and trouble shooter for an Independent telephone company in North Dakota, and for three years was associated with a firm of consulting engineers. Since becoming associated with the Kellogg engineering department, he has devoted attention to equipment, inspection and apparatus engineering.

V V

Copperweld Names Chaffee To Sales Engineering Staff

Donald L. Chaffee has joined the sales engineering department of the Copperweld Steel Co., Glassport, Pa. Honorably discharged from the U. S. Army Signal Corps, Mr. Chaffee served in the wire branch of the Signal Corps Engineering Laboratories, Camp Coles, N. J.

While with the Signal Corps laboratories, Mr. Chaffee worked on the design of outside telephone plant equipment and the development of methods of construction for field wire, cable and open wire lines. He was sent to the North African Theater of Operations and assisted in the first application of Spiral-4 cable, tactical open wire pole lines and long range field wire. From there he was sent to the Canal Zone where his duties consisted of testing the techniques and equipment for jungle telephone construction and lines.

Mr. Chaffee is a graduate of Cornell University and for his outstanding services in overseas theaters, holds the Meritorious Civilian Award.

V V

Hallicrafters Co. Plans New Building

Plans for the construction of a single story building recently were announced by the Hallicrafters Co., Chicago, producers of high frequency radio equipment.

The building, for which the ground was broken on September 6, is to cost $600,000, according to William J. Halligan, Hallicrafters president. Its site was purchased from the Reconstruction Finance Corp. in August, 1944, for $65,000.

The new structure is to accommodate the general offices, development laboratories and production facilities, including the Echophone Division which manufactures the firm's home radio receivers.

dependable
Cedar Poles
MICHIGAN POLE & TIE CO.
NEWBERRY—GRAND RAPIDS
MICHIGAN

Cedar Poles
MAC GILLIS & GIBBS COMPANY
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Northern White and Western Red
Cedar Poles—Plain or Butt-Treated

POLES

B. J. Carney & Co., 100 N. 7th St., Minneapolis, Minn.—Western red cedar poles. Pentrex Butt Treated or Plain.

C. M. Christiansen Co., Phelps, Wis.—Northern White Cedar Poles, plain or butt treated.

International Creosoting and Construction Co., Galveston, Texas.—Creosoted Southern Yellow Pine Poles. Plants: Beaumont and Texarkana, Texas.

T. M. Partridge Lumber Co., Minneapolis, Minn.—Northern White—Western Red Cedar Poles. Plain or butt-treated.

Pensacola Creosoting Company, Pensacola, Fla.—Creosoted Southern Pine. Poles of Superior Long Leaf Quality.

WE BUY
WE TRADE
WE REBUILD
Old telephones or parts into smart modern-looking wall phones or desk sets with new cabinets.
Repair service for Transmitters, Receivers, Desk Stands and Wall Phones—Magneto or Common Battery.
Specialists in Repairing and Rebuilding Transmitters
The Telephone Repair and Supply Co.
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PLANTS AND OFFICES:
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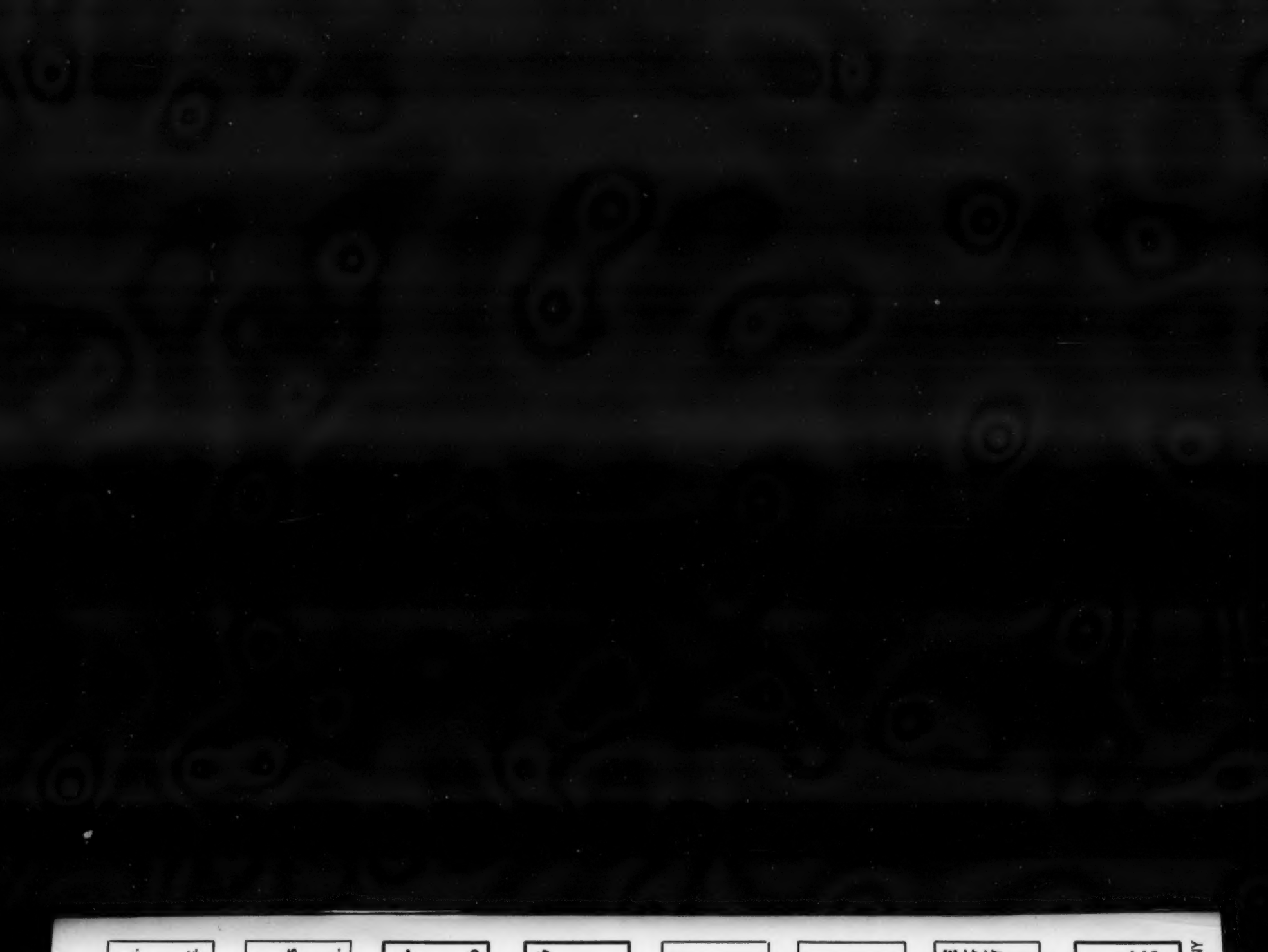
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